

Apple-Works **F** o r u m

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Support for AppleWorks and ///EZ Pieces Users

The Case of the Missing K

Dear NAUG:

I just used Bank Sizer and ProSel's Ram Drive program to configure AppleWorks 3.0 to use a RAM disk. Ram Drive let me determine the number of banks to lock out; Bank Sizer applied the necessary patch to AppleWorks.

Before partitioning, Bank Sizer reported that my Apple IIe with a 3-megabyte RamWorks III card had 48 banks totaling 3135K available. After locking out 10 banks, Bank Sizer predicted the new desktop to be 2275K. Then I configured AppleWorks so it would not load its modules into memory. However, my actual desktop after bootup is only 1595K. Since most of my TimeOut modules are disk resident, it appears that I may be "missing" some K of RAM. What happened to that memory?

Pete Vollmer
Escondido, California

[Randy Brandt replies: AppleWorks caches its segments in a way that does not affect the size of desktop memory. Thus, preloading the AppleWorks 3.0 modules has no effect on the size of the AppleWorks desktop. Remember that the program automatically dumps segments from memory when it needs the space to store AppleWorks data.]

AppleWorks uses one of your 48 banks of RamWorks III memory as part of its standard 128K of desktop memory. That leaves 47 expansion banks times 46 usable K on each bank for a total of 2162K. Then you must subtract 460K for the ten banks you locked out and another 3K for AppleWorks "overhead". That leaves 1699K. TimeOut uses some of that memory, and any TimeOut modules you preload into memory would further lower that total.

Ed: John Link's Bank Sizer program is available from NAUG's Public Domain Library for \$4 (5.25-inch disk) or \$6 (3.5-inch disk) plus \$2 s/h.)]

The **National AppleWorks Users Group (NAUG)** is an association that supports AppleWorks users. NAUG provides technical support and information about AppleWorks and enhancements to that program. Our primary means of communicating with members is through the monthly newsletter entitled the **AppleWorks Forum**.

Was Bug Fixed?

Dear NAUG:

A bug in AppleWorks 2.0 could damage your data if you responded "Yes" to the question "Insufficient room for your file on this disk. Is it OK to delete the old copy of this file?". Was that bug fixed in AppleWorks 3.0?

Rick Wise
Oakland, California

[Ed: That bug only appeared in AppleWorks 2.0. You can respond "Yes" to this question if you use AppleWorks 2.1 or 3.0.]

Speed Up FileMaster

Dear NAUG:

I do almost all my work with AppleWorks and make heavy use of TimeOut FileMaster, the Beagle Bros product that adds a complete disk utility program to AppleWorks. However, I have one complaint. Whenever I want to delete a series of files, FileMaster asks me to confirm each file before deleting the file from the disk. Is there any way to skip that file-by-file confirmation?

John Sullivan
Marquette, Michigan

[Ed: Enter an Apple-Return after you select the files you want to delete and FileMaster will not ask you to confirm the deletion of each file.]

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A Lease/Purchase Decision Template

by Stan Hecker

Here is a template you can use to help you decide whether to lease or buy a car, boat, or other expensive item.

At first glance, preparing a template that compares the cost of leasing and buying a car looks like an easy task. In actuality, preparing such a template is a complex undertaking because you must consider three scenarios: leasing, borrowing to buy, and buying with cash. You should also account for the time-value of your money.

In this article I will describe a how to prepare a template that can help you make lease/purchase decisions. The template considers many, but not all of the variables that should affect your decision. For example, the template does not consider: (a) the tax ramifications of leasing or buying, (b) the differences in the cost of insuring a leased or owned vehicle, or (c) psychological factors such as the pride of ownership.

The Template

Figure 1 depicts the complete lease/purchase template. *Figure 2* shows two windows you can use to display the data you enter and the results of the calculations. *Figure 3* presents the formulas included in each cell of the template.

I entered the data for the car I described in last month's article; i.e., a purchase price of \$14,000, a 13.5% interest rate for the new car loan, a resale value of \$7978 (based on the @PV calculations described last month), a 20% initial payment for a purchase, and the other data I entered on lines 17-29 of the template. I also assumed that the best interest rate you can safely get for your personal savings (either lump sum or monthly annuity) over 48 months is 6.5%, and I entered the 6.5% assumption on line 12. Once you type this template into

AppleWorks, you can change any of these assumptions and AppleWorks will provide a summary of the financial comparisons, with or without considering the time-value of your money.

The template uses AppleWorks 3.0's ability to manipulate text strings to present its results as short imperatives: "LEASE!" or "BORROW!" or "USE CASH!". [Ed: The ability to manipulate text strings is a new feature of AppleWorks 3.0. See the article entitled "How to Manipulate Text in AppleWorks 3.0" in the August 1989 issue of the *AppleWorks Forum* for a description of how to display text in a spreadsheet.] I prepared the display in *Figure 2* by using the Open-Apple-W command to make top-and-bottom windows on the screen.

There are different considerations when comparing a lease to a cash purchase, and in comparing the same lease to a loan purchase. One of the subtleties of this template is that it compares each pair of alternatives independent of the third alternative. The template accommodates those differences on lines 33 through 60.

The Financial Functions

The calculations in lines 33 through 60 are the heart of the template, and the formulas in these lines can help you understand the logic and subtleties of the template.

For example, line 36 gives the "simple cost" of buying the car with cash. However, what if you don't buy the car? That leaves the cash available for an investment. Cell B37 uses the future value function (@FV) to reveal that you will make over \$4,000 in interest if you leave the cash in the bank earning

Figure 1: A Lease/Purchase Template

A	B	C	D
1	COMPARING LEASE/PURCHASE ALTERNATIVES FOR AUTOMOBILES		
2			
3	Make entries at each arrow up to the asterisks. Scroll below asterisks		
4	for exact money details. Ignore any alternatives that you can't		
5	afford; i.e. if you don't have the cash purchase price in hand, to		
6	spend or to save, then the only useful question is "LEASE or BORROW?"		
7	If you want to ignore the time value of your money, then you should		
8	Open-Apple-<J>ump to the other window and scroll down a few lines to		
9	the "simple cost" comparisons below line 67, then Open-Apple-<J>ump back.		
10			
11	YOUR INVESTMENT OPPORTUNITIES		
12	Interest rate on savings----->	.065	
13			
14	MORE INFO NEEDED BELOW-SCROLL AND ENTER DATA TO ASTERISKS (* *)		
15			
16	VEHICLE INFORMATION		
17	Cash purchase price ----->	14000	
18	Resale value (@FV, dealer?) ---->	7978	
19	Months to disposal ----->	48	
20			
21	AUTO LOAN INFORMATION		
22	Interest rate ----->	.135	
23	Loan value (OR amt to borrow) -->	11200	
24	Payment (no entry)	303.25	
25			
26	LEASE INFORMATION		
27	Refundable up-front costs ----->	300	
28	Non-refundable up-front costs -->	300	
29	Lease payment amount ----->	250	
30			
31	* * * NO ENTRIES BELOW-PRESS OPEN-APPLE-K-VIEW CALCULATIONS BELOW * *		
32			
33	CASH PURCHASE		
34	Purchase price	\$14,000.00	
35	- Resale price	(\$7,978.00)	
36	= Cash purchase "simple cost"	\$6,022.00	
37	+ Purchase price interest lost	\$4,144.29	
38	= CASH PURCHASE NET COST	\$10,166.29	
39			
40	LOAN PURCHASE		
41	Down payment amount	\$2,800.00	
42	+ Loan total payments	\$14,556.23	
43	- Resale value	(\$7,978.00)	
44	= Loan purchase "simple cost"	\$9,378.23	
45	+ Down payment interest lost	\$828.86	
46	= LOAN PURCHASE NET COST	\$10,207.09	
47			
48	LEASE		
49	...COMPARED TO CASH PURCHASE		
50	Non-refundable lease costs	\$300.00	
51	+ Lease total payments	\$12,000.00	
52	= Lease "simple cost"	\$12,300.00	
53	+ Up-front costs interest lost	\$177.61	
54	= LEASE COST TO COMPARE TO CASH	\$12,477.61	
55			
56	...COMPARED TO LOAN		
57	Lease cost from above	\$12,477.61	
58	- FV if LEASE pmt. lower	(\$2,910.37)	
59	+ FV if LOAN pmt. lower	\$0.00	
60	= LEASE COST TO COMPARE TO LOAN	\$9,567.24	
61			
62	COMPARISONS BELOW INCLUDE AND DEPEND ON THE TIME VALUE OF MONEY		
63	Should I LEASE or BORROW?	LEASE!	and save.... \$639.85
64	Should I LEASE or buy with CASH?	USE CASH!	and save.... \$2,311.33
65	Should I use CASH or BORROW?	USE CASH!	and save.... \$40.80
66			
67	COMPARISONS OF "SIMPLE COSTS" BELOW IGNORE THE TIME VALUE OF MONEY		
68	Should I LEASE or BORROW?	LEASE!	and save.... \$2,921.77
69	Should I LEASE or buy with CASH?	USE CASH!	and save.... \$6,278.00
70	Should I use CASH or BORROW?	USE CASH!	and save.... \$3,356.23

6.5% interest compounded annually. This is the primary disadvantage of using cash to buy the car.

Note that the spreadsheet subtracts the purchase price (the value in cell B17) from the result of the @FV function and thus only displays the interest earned. I separated the principal and interest so you could determine both the "simple" cost and the "time-value" cost of the cash purchase. I applied the same logic in cell B45 for the loan-purchase down-payment interest, and in cell B53 for the interest lost on the up-front costs of the lease.

Also note the use of the @PMT function in cell B24 which calculates your monthly loan payment. You need this information to compare the cost of borrowing to the cost of the other alternatives.

Integrating the AppleWorks Functions

Cells B37 and B45 also use AppleWorks' @ABS ("absolute") function to convert the results of the @FV function to a positive number, thus making it easier to use the @SUM function in the later calculations.

Cells B58 and B59 deserve some explanation. Monthly loan payments and lease payments usually differ, and if you select the alternative with the smaller payments, you can save and invest the difference. These cells determine the amount that you save by selecting the alternative with the smaller monthly payments.

In my example, the lease payment is \$250 and the loan payment is

Figure 2: The Data Entry and Results Windows

A	B	C	D
1	COMPARING LEASE/PURCHASE ALTERNATIVES FOR AUTOMOBILES		
2			
3	Make entries at each arrow up to the asterisks. Scroll below asterisks		
4	for exact money details. Ignore any alternative that you cannot		
5	afford; i.e. if you don't have the cash purchase price in hand, to		
6	spend or to save, then the only useful question is "LEASE or BORROW?"		
7	If you wish to ignore the time value of your money, then you should		
8	Open-Apple-<J>ump to the other window and scroll down a few lines to		
9	the "simple cost" comparisons below line 67, then Open-Apple-<J>ump back.		
10			
11	YOUR INVESTMENT OPPORTUNITIES		
12	Interest rate on savings----->	.065	
13			
14	MORE INFO NEEDED BELOW-SCROLL AND ENTER DATA TO ASTERISKS (* * *)		
A	B	C	D
63	Should I LEASE or BORROW?	LEASE!	and save.... \$639.85
64	Should I LEASE or buy with CASH?	USE CASH!	and save.... \$2,311.33
65	Should I use CASH or BORROW?	USE CASH!	and save.... \$40.80

Hints for Typing the Template

Remember to save your work often as you type this Lease/Buy template into AppleWorks.

After you enter the worksheet, you should protect all the cells except the ten cells that accommodate user-entered data. Set protection as follows:

Start by protecting all the cells so nothing can be entered. Follow these steps:

1. Put the cursor in cell A1, issue an Apple-L command and select "Block".
2. Issue an Apple-> command to highlight the entire first row in the spreadsheet. Then issue an Apple-9 command to move the cursor to the bottom row in the spreadsheet. This should highlight the entire spreadsheet. Press the Return Key.
3. Select "Protection" and indicate you want to allow "Nothing".

Then follow these steps to set the level of protection so users can enter data into the ten cells that must accept their data:

1. Move the cursor to cell B12 (where the users enters their interest rate on savings), issue an Apple-L command, select "Entry", then "Protection", and "Values only". That lets users enter a numeric value into that cell.
2. Repeat the previous step for the nine cells where users enter the purchase price, interest rates, and other specifics.

(which is the difference between the lease and purchase payments). Then express and display that value as a negative number so it shows as a reduction in the lease cost. However, if the loan payment is not greater than the lease payment, display a zero."

Cell B59 does the obverse if the lease payments are greater than the purchase payments. That is, the formula in cell B59 increases the net cost of the lease by the amount you would save by depositing the difference between the purchase payments and the lease payments in an interest bearing account.

The "answer window" in cells B63, C63, D63, and below, uses a number of different AppleWorks functions. For example, the formula in cell B63 says: "If the net lease cost is greater than the net borrowing cost, then display the word 'BORROW!'; otherwise, display the word 'LEASE!'"

I used this same pattern in cells B63 through B70 with the appropriate "net" and "simple" costs substituted to correspond to the question in the adjacent cell.

The formula in cell D63 uses the following logic to determine the difference between the net lease and net borrowing costs:

"If the net lease cost is greater than the net borrowing cost, subtract the net lease cost from the net borrowing cost and display it. If the net lease cost is *not* greater than the net borrowing cost, subtract the borrowing cost from the lease cost."

These formulas do not require the @ABS function because the @IF statement ensures that you always subtract the smaller amount from the larger amount and the result is always positive.

\$303.25. If you invest the \$53.25 difference each month, you will create a future value annuity which reduces the cost of the lease by \$2,910.37 over the four years that you lease the car.

The formula in cell B58 states: "If the loan payment is greater than the lease payment, then compute the future value of the savings by using @FV with the savings interest rate, the number of months entered by the user, and a monthly amount

Figure 3: Formulas in the Template

```

1|  COMPARING LEASE/PURCHASE ALTERNATIVES FOR AUTOMOBILES
2|
3| Make entries at each arrow, down to asterisks. Scroll below asterisks
4| for exact money details. Ignore any alternatives that you can't
5| afford; i.e. if you don't have the cash purchase price in hand, to
6| spend or to save, then the only useful question is "LEASE or BORROW?"
7| If you wish to ignore the time value of your money, then you should
8| Open-Apple-<J>ump to the other window and scroll down a few lines to
9| the "simple cost" comparisons below line 67, then Open-Apple-<J>ump back.
10|
11| YOUR INVESTMENT OPPORTUNITIES
12| Interest rate on savings ----->          .065
13|
14|  MORE INFO NEEDED BELOW--SCROLL AND ENTER DATA TO ASTERISKS (* *)
15|
16| VEHICLE INFORMATION
17| Cash purchase price ----->          14000
18| Resale value (@PV, dealer?) ---->          7978
19| Months to disposal ----->          48
20|
21| AUTO LOAN INFORMATION
22| Interest rate ----->          .135
23| Loan value (OR amt to borrow) -->          11200
24| Payment (no entry)          @ABS (@PMT (B22/12, B19, B23))
25|
26| LEASE INFORMATION
27| Refundable up-front costs ----->          300
28| Non-refundable up-front costs -->          300
29| Lease payment amount ----->          250
30|
31| * * * NO ENTRIES BELOW--PRESS OPEN-APPLE-K-VIEW CALCULATIONS BELOW * *
32|
33| CASH PURCHASE
34| Purchase price          +B17
35| - Resale price          -B18
36| = Cash purchase "simple cost"  @SUM (B34, B35)
37| + Purchase price interest lost  @ABS (@FV (B12/12, B19, 0, B17)) - B17
38| = CASH PURCHASE NET COST  @SUM (B36, B37)
39|
40| LOAN PURCHASE
41| Down payment amount          +B17-B23
42| + Loan total payments          +B24*B19
43| - Resale value          -B18
44| = Loan purchase "simple cost"  @SUM (B41...B43)
45| + Down payment interest lost  @ABS (@FV (B12/12, B19, 0, B41)) - B41
46| = LOAN PURCHASE NET COST  @SUM (B44, B45)
47|
48| LEASE
49| ...COMPARED TO CASH PURCHASE
50| Non-refundable lease costs          +B28
51| + Lease total payments          +B29*B19
52| = Lease "simple cost"          @SUM (B50, B51)
53| + Up-front costs interest lost  @ABS (@FV (B12/12, B19, 0, B27+B28)) - B27-B28
54| = LEASE COST TO COMPARE TO CASH  @SUM (B52, B53)
55|
56| ...COMPARED TO LOAN
57| Lease cost from above          +B54
58| - FV if LEASE pmt. lower          @IF (B24>B29, @FV (B12/12, B19, B29-B24) *-1, 0)
59| + FV if LOAN pmt. lower          @IF (B29>B24, @FV (B12/12, B19, B24-B29), 0)
60| = LEASE COST TO COMPARE TO LOAN  @SUM (B57...B59)
61|
62| COMPARISONS BELOW INCLUDE AND DEPEND ON THE TIME VALUE OF MONEY
63| Should I LEASE or BORROW?          @IF (B60>B46, " BORROW!", " LEASE!")          and save.... @IF (B60>B46, B60-B46, B46-B60)
64| Should I LEASE or buy with CASH? @IF (B38>B54, " LEASE!", " USE CASH!")          and save.... @IF (B38>B54, B38-B54, B54-B38)
65| Should I use CASH or BORROW? @IF (B46>B38, " USE CASH!", " BORROW!")          and save.... @IF (B46>B38, B46-B38, B38-B46)
66|
67| COMPARISONS OF "SIMPLE COSTS" BELOW IGNORE THE TIME VALUE OF MONEY
68| Should I LEASE or BORROW?          @IF (B52>B44, " LEASE!", " BORROW!")          and save.... @IF (B52>B44, B52-B44, B44-B52)
69| Should I LEASE or buy with CASH? @IF (B36>B52, " LEASE!", " USE CASH!")          and save.... @IF (B36>B52, B36-B52, B52-B36)
70| Should I use CASH or BORROW? @IF (B44>B36, " USE CASH!", " BORROW!")          and save.... @IF (B44>B36, B44-B36, B36-B44)

```


Summary

In this article I described a working template that helps you determine whether it is less expensive to lease or buy a car. I expect that you can generalize these ideas to templates you develop to help you make your own financial decisions.

[Stan Hecker is on the administrative staff at Michigan State University, East Lansing, Michigan, and is a partner in H&H Consulting, a Michigan concern specializing in school district financial and population analyses.]

My Favorite Template

This May, NAUG will start a new series of articles entitled "My Favorite Template". Each month's article will describe a word processor, data base, or spreadsheet template that is particularly useful to members or that demonstrates valuable AppleWorks concepts.

Please send NAUG a disk and printed copy of your favorite template(s). Include a description of what it does, how it works, and why it may be interesting to your NAUG colleagues. Mail it to: My Favorite Template, NAUG, Box 87453, Canton MI 48187.

LockOut 1.1

At last, protection for the IIGS Control Panel that really works! LockOut allows access to all Classic and New Desk Accessories (including both Control Panels), but prevents changes to the Control Panel from taking effect. Does not interfere with desk accessories which do not change the Control Panel. LockOut patches the system's firmware silently and automatically, during boot up. Instructions include information for installing LockOut on ProDOS-8, ProDOS-16, and GS/OS floppies, as well as AppleShare file servers and hard drives.

Package includes license to install LockOut on all floppy disks, hard disks, and file servers in a single building. Successfully used by more than 40 school systems across the country. Written by John Link, author of SuperPatch. Satisfaction guaranteed, or your money back. \$10.00 + 2.00 S&H. Send to:

LockOut
3382 Sandra Drive
Kalamazoo, MI 49004

Price Increases

Although members know about the recent increase in rates by the U.S. Postal Service, many members probably do not know that United Parcel Service recently raised shipping rates and added a 50 cent fee on each package delivered to a residential address. This is the third rate increase since NAUG last raised its shipping charges.

We must now increase the fees we collect to reimburse the group for these higher costs. The following prices will become effective April 1, 1991:

Item	Old Shipping Price	New Shipping Price
Apple II Guide	2.00	2.50
AppleWorks Handbook: Vol. I	2.00	2.50
AppleWorks Handbook: Vol. II	3.00	3.50
AppleWorks Tapes (add. per order)		2.00
Hard Disk Primer	3.00	3.50
InWords	3.00	3.50
Polaroid Disks (first box)	3.00	3.50
TimeOut Modules (first package)	3.00	3.50
TimeOut Modules (second package)	2.00	2.50
UltraMacros Primer	3.00	3.50
1040Works	3.00	3.50
Beagle Buddy Updates (first 5.25" disk)	2.50	3.00
Beagle Buddy Updates (first 3.5" disk)	3.00	3.50

Back issues of the *AppleWorks Forum*, which currently cost \$3.50, will cost \$4.00 per issue including shipping.

We regret these price increases and will continue to look for the most cost effective ways to get products to our members.

NAUG will be able to retain the current \$29 membership rate until early summer, at which time we will have exhausted our reserves. As in the past, we will give members early notification of pending membership rate increases.

NAUG BBS

Congratulations to Charles Myler of San Antonio, Texas for being the 50,000th caller to the Electronic Forum, NAUG's AppleWorks bulletin board. Mr. Myler won a one-year extension to his NAUG membership. Call the Electronic Forum for help with AppleWorks or to download templates, fonts, or utility programs. A free service of NAUG. (313) 736-8102.

Simple Macros ... Powerful Results

by Keith Johnson

The power and versatility of TimeOut Ultra-Macros often encourages programmers to create elaborate macros that perform impressive, complex tasks. But sometimes the simplest macros are the most useful. This month I offer a few of the useful, short macros I've encountered or developed.

Switch between Files

How often do you switch between one file on the desktop and the file immediately above or below that file on the Desktop Index? The first two macros in *Figure 1* automate that task. The third macro in this figure returns you to your current file from anywhere in AppleWorks.

I chose the <sa->, <sa->, and <sa-\> tokens because these keys fit under my right hand comfortably when I work on my Apple IIe. The right and left brackets also help me remember which direction the highlight will move on the Desktop Index.

Note that the <sa-\> macro only returns to the active file if AppleWorks "remembers" that there is a currently active file. There are times that AppleWorks "forgets" the name of the active file (for

Figure 1: Macros that Select Files

```
[ :<all : oa-Q : up : rtn>! { Switch to previous file. }
] :<all : oa-Q : down : rtn>! { Switch to next file. }
\ :<all : oa-Q : rtn>! { Return to same file. }
```

Figure 2: Macro that Jumps Half a Screen

```
<down>:<all : { Define the macro. }
x = 5 : { x = number of steps to take; default = 5. }
t = peek %c6b : { t = Which type of AppleWorks file? }
if t = 1 x = 7 : else : { If %c6b = 1, it's a data base file. Set x = 7. }
if t = 2 x = 10 : else : { If %c6b = 2, it's a word processor file. Set x = 10. }
if t = 3 x = 9 : elseoff : { If %c6b = 3, it's a spreadsheet file. Set x = 9. }
i = 0 : { Initialize the counter. }
begin : { Begin a loop. }
down : i = i + 1 : { Move down one line and increment the step counter. }
ifnot i = x then rpt>! { If i does not equal x, repeat the loop. If i = x, stop. }

<up>:<all : { Define the macro. }
x = 5 : { x = number of steps to take; default = 5. }
t = peek %c6b : { t = Which type of AppleWorks file? }
if t = 1 x = 7 : else : { If %c6b = 1, it's a data base file. Set x = 7. }
if t = 2 x = 10 : else : { If %c6b = 2, it's a word processor file. Set x = 10. }
if t = 3 x = 9 : elseoff : { If %c6b = 3, it's a spreadsheet file. Set x = 9. }
i = 0 : { Initialize the counter. }
begin : { Begin a loop. }
up : i = i + 1 : { Move up one line and increment the step counter. }
ifnot i = x then rpt>! { If i does not equal x, repeat the loop. If i = x, stop. }
```

example, if you perform operations such as listing all the files on the current drive). In those instances, the <sa-\> macro puts you in the first file on the Desktop Index.

Half a Screen is Better than One

AppleWorks' cursor movements are useful and logical. But I often want to move by amounts that the program doesn't support. For instance, I like to be able to move up or down half a screen, rather than the full screen that <oa-up> and <oa-down> provide.

Of course, "half a screen" isn't the same number of steps everywhere in AppleWorks, so the macros

My Favorite Macro...

Figure 3: Macro that Displays the Date

```
<Ctrl-D>:all : msg ' The date is ' + date + ' (key) ' :  
k = key : msg "">!
```

Figure 4: Macro that Reverses Characters

```
W:<all :  
c = peek #socursor :      { Store the current cursor type in "c".           }  
insert :                  { Switch to the insert cursor.                   }  
read :                    { Store the current character in variable $Ø.       }  
del : right :             { Delete the character and move the cursor to the right. }  
print $Ø :                { Print the character in the new position.          }  
if c = 1 oa-E!            { Restore the overstrike cursor if necessary.       }
```

have to know how many lines to move. *Figure 2* contains two macros that do the job.

The macros in *Figure 2* are not as complicated as they look. The memory location \$c6b (the "\$" indicates a hexadecimal number) holds a code for the type of file that is active. When a data base file is active, AppleWorks puts a "1" in that address in memory. A "Ø" means AppleWorks doesn't remember that you are working on a particular file (see the discussion above). [Ed: A list of AppleWorks memory addresses appears on pages 175 and 176 of Mark Munz's book, *The UltraMacros Primer* published by NAUG.]

I chose the values of 7, 10, and 9 as the appropriate number of lines to move the cursor in data base, word processor, and spreadsheet files respectively. You can change those values to customize these macros.

If you are not in a file (for example, if AppleWorks is displaying a list of files), "half a screen" can be any of several values. I chose "5" as a reasonable value for most situations. Sometimes that default doesn't work well; that is, the macro will under-shoot or overshoot "half a screen".

Computer Dating

The clock display built into UltraMacros automatically displays the current time on the screen, but not the date. The macro in *Figure 3* overcomes that omission by displaying the date upon command.

This macro uses UltraMacros' <date> token to get the current date and then displays the date in a message at the bottom of the screen.

The word "key" appears twice in this macro. First, the message reminds the user to press a key to end the macro. The expression `k = key :` `msg ""` stops the macro until the user presses any key. Then the macro captures the keypress in variable `k` but terminates without using the contents of that variable.

Reversing Characters

I can't tell you how many times I've typed "teh" instead of "the" or "wsa" instead of "was". It takes a few keystrokes to fix this problem, and I sometimes make new mistakes trying to fix the original.

Sidney Powers, of Valencia, California, submitted the macro in *Figure 4* that corrects these errors. To use the macro, put the cursor on the first of the two reversed characters and enter a <sa-W>.

This macro demonstrates another way to check the memory in your Apple to determine a setting established by AppleWorks. "#socursor" is the label that locates the address used to store the current cursor type. AppleWorks stores a "1" in this address when the overstrike cursor is active and a "Ø" when you are in insert mode. A complete list of these labels appears on pages 210-211 of *The UltraMacros Primer*.

Conclusion

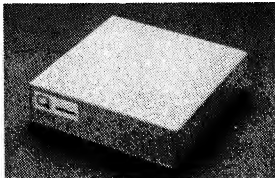
This month I described four sets of simple macros that add useful functionality to AppleWorks. Let me know if you've found even the easiest way to use UltraMacros. You never know when your insights will be helpful to your colleagues.

[Keith Johnson is Associate Director of the Fleischmann Planetarium at the University of Nevada. Sidney Powers is an Engineering Manager for Rockwell International.]

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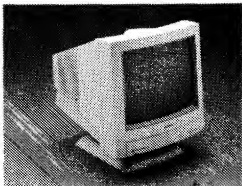
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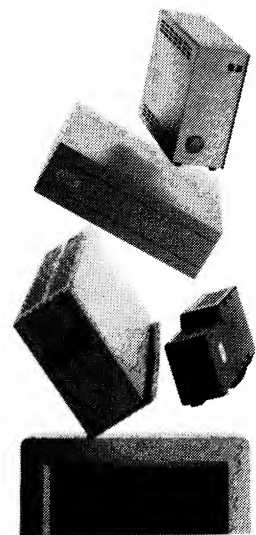
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TimeOut TextTools: Useful Enhancements for the Word Processor

by Ira M. Garvin

Most of us would agree that AppleWorks' word processor module is fast, convenient, easy to learn and use, and includes the features and commands required by most users. However, anyone who has used a powerful MS-DOS or Macintosh word processing program realizes that AppleWorks lacks some important features. For example, AppleWorks does not offer block copy, stylesheets, batch printing, and index and table of contents generators.

TimeOut TextTools is a collection of eleven TimeOut modules that add these features and more to AppleWorks. Each tool works independently of the others; you can add any or all of the tools to your collection of TimeOut applications. The tools are easy to install, easy to use, and work on any computer capable of running AppleWorks 3.0.

Here is a brief description of each TextTools module.

CopyBlock

CopyBlock lets you copy any rectangular block of text, including a list or column, within and between word processor documents. Creative workers will use CopyBlock to create multiple column documents without transferring data to and from the AppleWorks spreadsheet module.

CR Stripper

CR Stripper adds and removes Carriage Returns from a document. Anyone who uses a modem will appreciate CR Stripper's ability to add and delete Returns from documents transmitted on electronic mail services such as CompuServe. Or you can use CR Stripper with CopyBlock to prepare multi-column lists or multi-column output in AppleWorks. CR Stripper also makes it easy to import documents prepared by word processors that insert Returns in a text file (e.g., AppleWorks 2.1).

CR Stripper operates differently from macro-based Return strippers. The macros are fast and automatically delete all Returns except those at the end of a paragraph. However, this automatic approach destroys the formatting of tables and other segments of text where you intentionally insert a Return at the end of every line.

By contrast, CR Stripper lets you define the block of text you want to strip and removes all Returns from that portion of your document. This approach is slower, but lets you preserve the format of your charts and tables.

Glossary

The advent of computers has given a new meaning to the term "glossary". In a book, a glossary is a set of definitions of specialized terms. In word processing, a glossary stores sets of boilerplate text you can insert easily in a document. You can use the text in the glossary to eliminate the need for repetitive typing.

TextTools' Glossary module uses text you enter into a word processor document to create a TimeOut module that contains your boilerplate text. You then access the boilerplate paragraphs from the TimeOut Menu.

Figure 1 depicts a TimeOut Menu containing "Iras.Stationery", the TimeOut module I developed with Glossary. This module contains a glossary that includes my letterhead and the boilerplate opening and closing paragraphs I often include in my writing. *Figure 2* shows the Glossary Menu that appears when I select "Iras.Stationery" from the TimeOut Menu. *Figure 3* presents the document I used to create the Glossary Menu that appears in *Figure 2*.

If you ever compiled a set of macros, you will find

Figure 1: TimeOut Menu

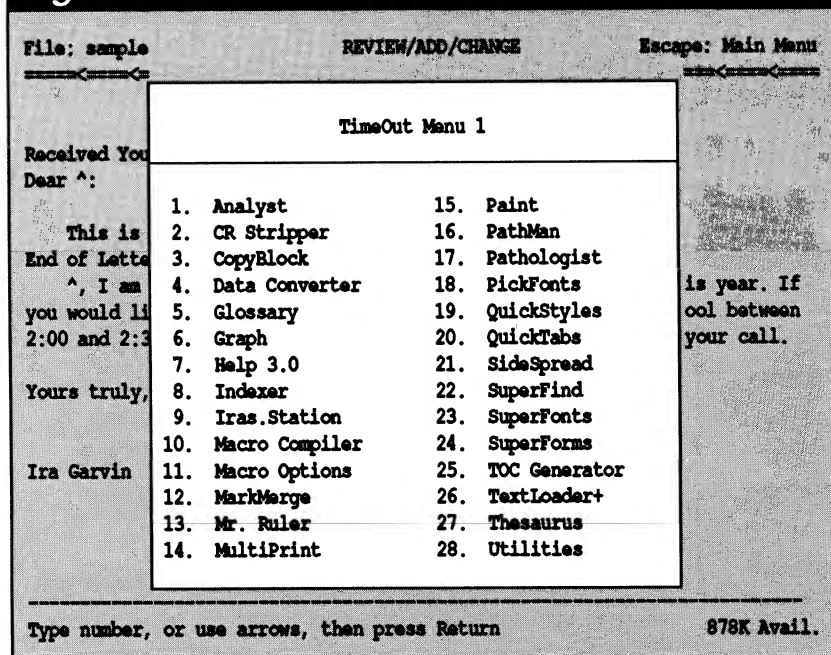
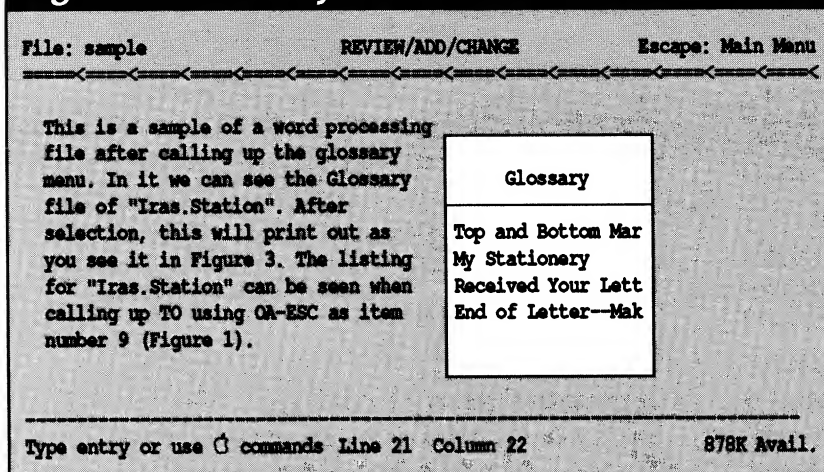


Figure 2: Glossary Menu



Glossary easy to use. Users unfamiliar with macros and the compiling process should allow 20 minutes to read the documentation and experiment before producing a simple glossary.

MarkMerge

MarkMerge is a mail merge program that integrates information from AppleWorks 3.0's data base module into word processor documents. Unlike the mail merge module built into AppleWorks (which always reformats the remaining text in a paragraph), MarkMerge lets you specify the exact location for each category and lets you tell the program whether or not to re-position the following text. As a result, you can

use MarkMerge to create templates that insert data in the exact location required by a pre-printed form. Although getting the correct placement of each category can be tedious, the process is easy and adds a useful function to AppleWorks.

Figure 4 depicts an AppleWorks document that is ready to print on a pre-printed form with MarkMerge.

MultiPrint

Apple II computers can only do one task at a time, thus AppleWorks does not let you print one document while you edit another. Some operating systems and word processing programs overcome this problem by offering "background printing"; they send output to the printer when your computer is idle between keystrokes. Other computers offer "buffers" or "spoolers" that capture your output in memory or on disk and send the output to the printer while you are creating and editing other documents. Until now, your only option with AppleWorks was to add a print buffer to your system.

[Ed: A "buffer" is a hardware device that stores your output in memory chips. A "spooler" is a program that stores your output on a hard disk. The buffer or spooler then lets you use your computer while it sends your documents to the printer. Print spoolers are less expensive,

but require a hard disk, and we don't know of any print spoolers that work with Apple II computers. However most standard print buffers work with Apple II systems.]

MultiPrint takes a different approach by letting you "batch print" up to 100 separate documents while you are away from the computer.

If you own MultiPrint, you work normally and save your work on disk. Then, before heading for lunch or going home, you invoke MultiPrint and select the files you want to print. MultiPrint will load the first file on the desktop, print the document, remove the file from memory, and repeat the

AppleWorks Add-Ons...

process with the next file in the queue. Thus, you need only enough memory to accommodate the longest file in the queue. If a file fits on your AppleWorks desktop, you can print it with MultiPrint.

MultiPrint lets you link files and sequentially number up to 512 pages in each document. That lets you create a single printed document up to 512 pages long from separate files.

MultiPrint is easy to use; *Figure 5* depicts the MultiPrint screen.

QuickStyles

Stylesheets are sets of formatting commands you can use to format a document. Since each stylesheet can contain an unlimited number of formatting commands, stylesheets make it easy to switch between formats. For example, teachers can use stylesheets to alternate between the formatting commands they use for the stem and choices when writing multiple choice test items. Writers can use stylesheets to switch back and forth between standard paragraphs and numbered paragraphs.

QuickStyles adds stylesheet capability to AppleWorks. Much like TimeOut Glossary, QuickStyles creates a TimeOut module that appears on your TimeOut Menu. You select that module to get to the StyleSheet Menu created by QuickStyles; that makes it easy to choose any of the stylesheets you developed (see *Figure 6*). QuickStyles also offers an expanded "Find" command that lets you locate the stylesheet you need and a "Zoom" function that shows the printer options in each stylesheet.

QuickTabs

QuickTabs lets you define, name, store, and switch between twenty different tab rulers. You change rulers by selecting Tab Rulers from the TimeOut Menu and choosing any of the tab rulers you created from a menu. Selecting rulers is easy, however

creating and editing rulers takes some practice; you will need the list of commands in the TextTools manual and some time to get comfortable with this useful module.

QuickTabs is particularly valuable for anyone who

Figure 3: File Used with Glossary

```
File: MY.GLOSSARY          REVIEW/ADD/CHANGE          Escape: Main Menu
=====
Start Glossary
Top and Bottom Margins
-----Top Margin: 0.5 inches
-----Bottom Margin: 0.5 inches
.and
My Stationary
-----Page Header
-----Centered

*****
* Ira M. Garvin          *
* 121 Michael Road      *
* Oakdale, N.Y. 11769   *
*****

-----Right Justified          Print Date Command====> ^
-----Unjustified

Dear
-----Page Header End
.and
Received Your Letter—Opening
Dear ^:
    This is a reply to your letter dated ^ in which you ^
.and
End of Letter-Making Progress
    ^, I am pleased to be able to tell you about ^'s progress this year. If
you would like to discuss this further, please contact me at school between
2:00 and 2:30 any school day or leave a message so I can return your call.

Yours truly,

Ira Garvin
.and
-----
Type entry or use ⌘ commands Line 21 Column 6          987K Avail.
```

Figure 4: Using MarkMerge to Print on a Form

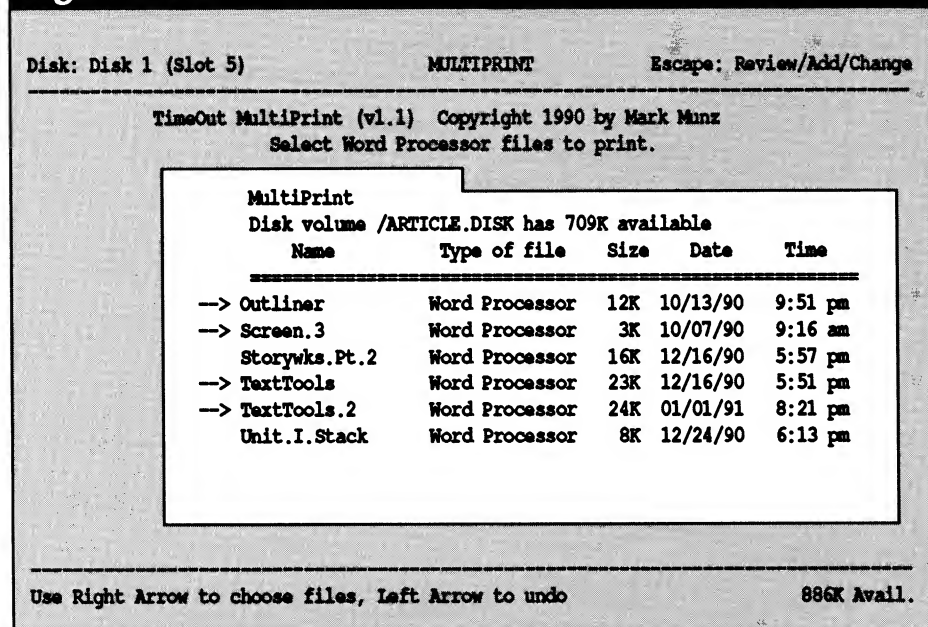
```
File: Form.Sample          REVIEW/ADD/CHANGE          Escape: Main Menu
=====
<*>.....

^<====Print Date Command
    <*>.....          <*>.....
    <*>.....          <*>..          <*>.....

    <*>... <*>.....
    <*>... <*>.....
    <*>... <*>.....

-----
Type entry or use ⌘ commands Line 21 Column 22          987K Avail.
```


Figure 5: MultiPrint Screen



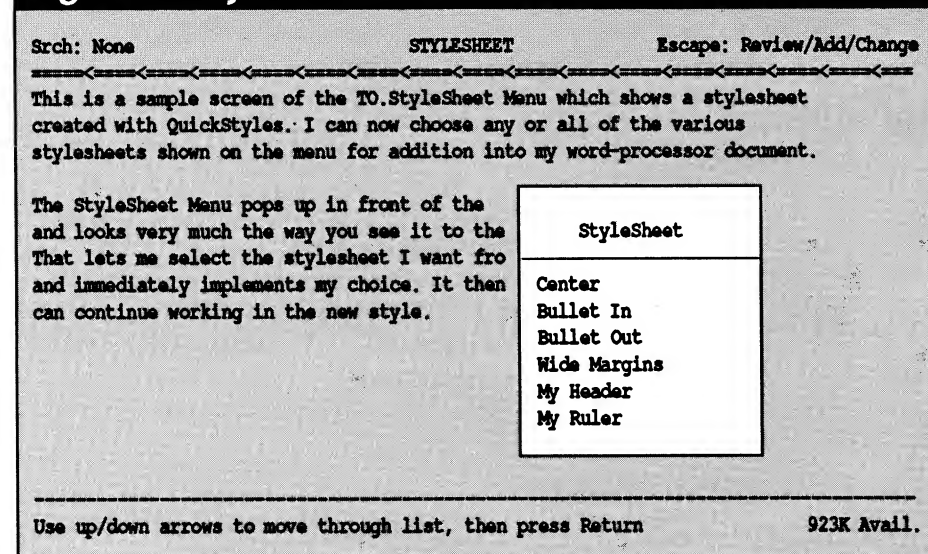
creates tests, charts, lists, or other heavily formatted documents; the program eliminates the need to create and/or copy tab rulers from document to document.

SuperFind

SuperFind can find and replace both text and formatting commands. For example, SuperFind makes it easy to change all "Indent 3 spaces" commands with any other indent setting you choose.

SuperFind is one of my favorite TextTools modules; it lets me quickly re-format any document. Word processor users will probably agree that SuperFind alone justifies the price of TextTools.

Figure 6: Stylesheets Menu



The Post-Processors

The TextTools modules described above help you write and edit your documents. Once you are done writing, you might want to use one of TextTools' "post-processors"; modules that help you complete the final work on lengthy manuscripts. These modules can help you prepare a Table of Contents and an Index.

Analyst

Analyst is an easy-to-use tool that produces a list of every word in a document and the number of times you used each word. You can use Analyst both as a check on your writing style (Did you use an unusual word too often? Can you think of a simple synonym to replace some esoteric term?) or to help you prepare an index.

Indexer

Indexer creates an index for a list of words you enter. Rather than

Getting More from MultiPrint

MultiPrint lets you link files for sequential printing, but the program prints your files in alphabetical order based on the file names. As a result, the program prints a document named "Chapter 10" before it prints "Chapter 2". That is because MultiPrint does not recognize numbers as clusters of characters when it alphabetizes; it treats the "1" and "0" in "10" as two separate characters. When it alphabetizes files, MultiPrint sees the "1" in "Chapter 10" as coming before the "2" in "Chapter 2" and puts the files in correct alphabetical, but not numerical, order.

To overcome this problem, enter a leading zero before chapter numbers 1-9 and thus name each chapter with a two-digit number (e.g., "Chapter 01"). That lets you print up to 99 files in sequential order with MultiPrint.

UltraMacros and TextTools

Advanced macro writers probably realize that they can use macros to duplicate many of the TextTools functions. This is particularly true for TextTools' CR Stripper, Glossary, MultiPrint, QuickStyles, QuickTabs, and SuperFind modules. Thus, you face a choice: Should you develop your own macros or should you buy TextTools?

There are good arguments on both sides of this issue, but if you can justify the expense, I recommend getting TextTools. Here is why:

1. It takes time to develop, test, and debug a good macro. Although I enjoy writing macros, I like to be productive. Developing full-featured equivalents of the TextTools modules is time consuming.
2. It will take some lengthy macro programs to duplicate the functions and flexibility inherent in the TextTools modules. These macros will either test the 4K limit for a macro set or be more complex because of the need to link macro sets.
3. TextTools offers modules like Analyzer, CopyBlock, Indexer, and TOC Generator that are not easily duplicated with macros.

Instead of writing macros to duplicate the functions built into TextTools, I added the TextTools modules to my collection of TimeOut applications and wrote macros that make it easier to use these functions. For example, I wrote a simple macro that takes me to the menu of stylesheets. Another macro puts my Tab Ruler Menu on the screen with a single keystroke.

If you like the challenge of producing carefully designed, well-written macros with good error checking and attractive menus, by all means go ahead and try your hand duplicating TextTools' functions with your own macros. But those of us who like to maximize our productivity in any given unit of time should probably get TextTools.

blindly list each occurrence of every word, Indexer highlights each word in context in your document and asks if you want to include that occurrence of the word in the index.

To create an index, you first process your document with Analyst and delete the words you do not want indexed. Next, you add synonyms of the words that remain on the list. Finally, you enter the list into Indexer and compile your index. It will still take more than a couple of hours to produce a

Figure 7: Sample Indexer Output

```
AppleWorks Add-Ons 1
CopyBlock 1
CR Stripper 1
Glossary 1
MarkMerge 3
MultiPrint 4, 5
QuickStyles 5
QuickTabs 6
SuperFind 6
Post-Processors 6
Index 6
Analyst 6
Indexer 6
TOC Generator 7, 8
Ease of Learning 8
Conclusion 8
```

comprehensive index; but these tools certainly facilitate the process.

Figure 7 presents sample output from Indexer.

TOC Generator

TOC Generator ("Table of Contents Generator") automatically creates a table of contents for any AppleWorks word processor file. Using TOC Generator is a two-step process. First, you insert AppleWorks markers in your original document; different marker numbers indicate different classifications for the final output. Then you process the file through the TOC Generator.

TOC Generator supports chapter numbers, chapter titles, and three levels of section headings. The module also produces separate lists of figures and tables in the document. Figure 8 depicts a sample output from TOC Generator.

TOC Generator uses AppleWorks' page numbering system to determine the page number for each section in the listing. Thus, you must use the print drivers within AppleWorks to produce your output; page numbering will not match the table if you print with TimeOut SuperFonts or transfer your documents into AppleWorks GS for final printing.

Ease of Learning

Each TextTools module is an independent program packaged together for your convenience. As such, the modules differ both in functionality and operation.

Most of the modules are so easy to use that you

Figure 8: Sample Output from TOC

CopyBlock	1
CR Stripper	1
Glossary.	1
MarkMerge	4
MultiPrint.	5
Sidebar: Getting More from MultiPrint.	5
QuickStyles	6
QuickTabs	7
Sidebar: UltraMacros and TextTools	8
SuperFind	9
Analyst	9
Indexer	9
TOC Generator	10

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will not need the well written documentation that accompanies the program. Other modules, such as MarkMerge, Glossary, QuickStyles, and QuickTabs are more complex but are adequately documented in the manual. Learning time ranges from just a few minutes for SuperFind and Analyst to about 20 minutes for MarkMerge and Glossary. Read the documentation for every module; many of the programs include hidden features and keystroke commands that can save time or make the program easier to use.

Conclusion

TimeOut TextTools is an outstanding collection of tools for anyone who makes heavy use of the AppleWorks word processor. The TimeOut modules on this disk can speed up and enhance the quality of everything you write with AppleWorks.

[Ira M. Garvin teaches Social Studies at West Hempstead High School, West Hempstead, NY. You can also reach him as Sherlock4 on America Online.]

[TimeOut TextTools costs \$49.95 from Beagle Bros, 6210 Ferris Square, Suite 100, San Diego, California 92121; (619) 452-5500 and is available for \$30.95 plus \$3 sh from NAUG.]

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NAUG's Disk Rescuers

by Cathleen Merritt

The March 1990 issue of the *AppleWorks Forum* describes ways to recover data from unreadable files or disks (see "How to Get Help Recovering AppleWorks Data"). When those efforts fail, is it time to turn to one of NAUG's "Disk Rescuers"; members who are expert on the intricacies of disk structure and operation. These gurus can usually recover data from all but the most badly damaged disks.

Here is an updated list of the Disk Rescuers.

Key

The symbols below each name indicate the kind of disks the expert can recover:

- ✕ = Damaged ProDOS directories
- = Damaged AppleWorks files
- ◇ = Damaged 5.25-inch disks
- = Damaged 3.5-inch disks
- ▽ = Damaged hard drives

Charles Baird
✕ ■ ◇
5896 LeHigh Lane
Bath, PA 18014
(215) 837-6080
(215) 437-0065
Fee: Free
Turn Around Time: 1 week

Terry Higgins
✕ ■ ◇
37091 Magnolia St, #213
Newark, CA 94560
(415) 745-7884
Fee: \$10/disk
Turn Around Time: 1 week
Comments: Only charges for successful disk recovery.

James Hirsch
✕ ■ ◇ ○
12310 Jonquil Street NW
Coon Rapids, MN 55433
(612) 421-8393 (home)
(612) 422-5572 (work)
Fee: Free
Turn Around Time: 2-5 days
Comment: Send printed copy of disk directory if possible.

Florence Hoechstetter
✕ ■ ◇
512 N. Columbian Dr.
Columbus, OH 43209
(614) 253-7720
Fee: \$5
Turn Around Time: 24 hours

Kevin Jarvin
■ ◇ ○ ▽
R.R. 2, Box 3
Dixon, NE 68732
(402) 584-2271
Fee: Cost of postage and disk
Turn Around Time: 1 week

Peter Pfeiffer
✕ ■ ◇ ○
503 Dranesville Rd
Herndon, VA 22070
(703) 437-1985 (home)
(703) 834-3618 (work)
Fee: NAUG rate: \$10/disk
Turn Around Time: 2-3 days
Comment: Call for quotes on other jobs.

Leon Raesly
✕ ■ ◇ ○
6201 Greenbelt Rd M-16
College Park, MD 20740
(301) 220-0717 (9-5 weekdays)
Fee: \$5/disk
Turn Around Time: 1 week
Comment: Call first (can often provide help over the phone.)

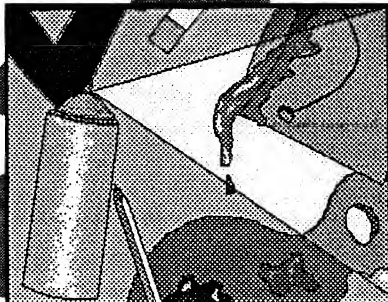
Jeff Strichard
✕ ■ ◇ ○ ▽
7521 N.W. 10th Ct.
Ft. Lauderdale, FL 33313
(305) 587-9590 (home)
Fee: \$5/file; \$5/disk
Turn Around Time: 3-5 days
Comment: Fee includes postage

Bob Suits
✕ ■ ◇ ○
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Columbia, MO 65203
(314) 445-6082 after 4 pm
Fee: \$5/disk; quotes for other jobs
Turn Around Time: Varies

John G. Thomas
✕ ■ ◇ ○
38 Sunnybrae Blvd.
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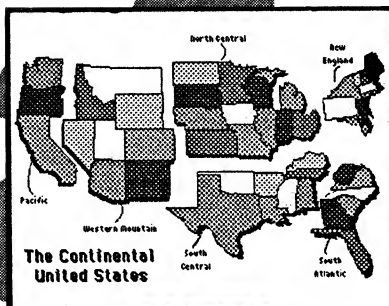
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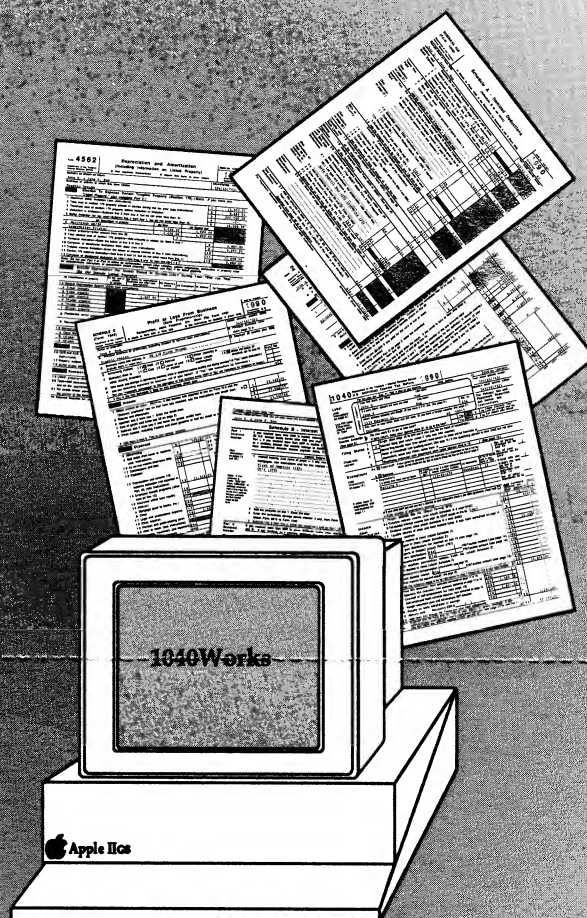
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A	E	2106	3903	8582-CR	
B	F	2114	4562	8606	
C	R	2119	6251	8615	

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Two Versions of 1040Works

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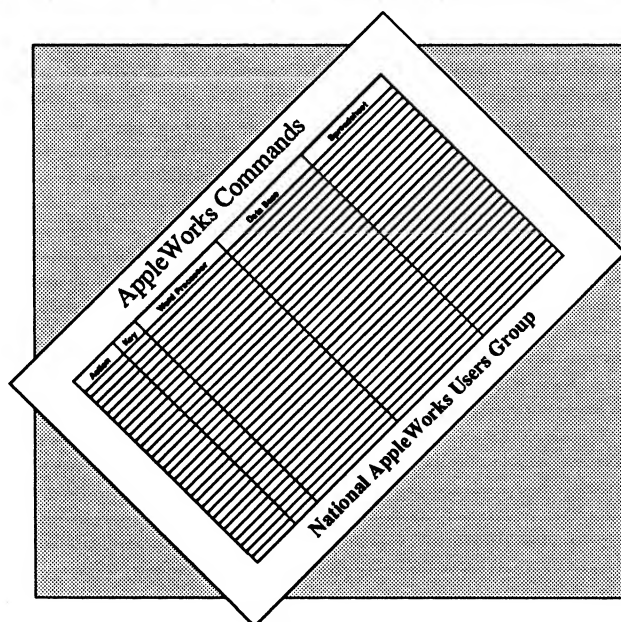
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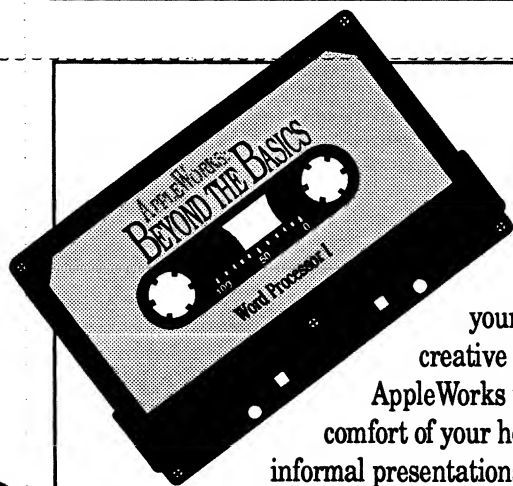
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Accelerate Your TransWarp GS Card — Part 1

by John Link

This is the first of two articles that describe how to improve the performance of a TransWarp GS card by more than 60 percent without voiding its warranty.

Over the years I have developed a healthy respect for the design and reliability of the Applied Engineering TransWarp GS (TWGS) accelerator card in my computer. The card works well and more than doubles the processing speed of my system.

Now, with help from the card's designer, I've discovered ways to increase the performance of existing TWGS cards by an additional 8% - 60%. This results in a computer that runs two to three times faster than a non-TWGS-enhanced Apple IIGS system.

This is the first of two articles in which I will describe how to install these enhancements. This month, I describe how to install the simplest of the upgrades, which increases the TWGS cache memory from 8K to 32K. I recommend this enhancement for all TWGS owners. Next month, I will describe how to increase the card's processing speed from 7 MHz to 10 MHz. The cache upgrade I describe this month is fully compatible with next month's upgrades to processing speed.

A Caveat

With almost 16,000 NAUG members reading these articles, you must recognize that I cannot provide individual technical support for these upgrades. Applied Engineering supports the cache upgrade with their usual technical assistance and warranty programs. Although I installed and tested each of the upgrades I describe in these articles, I cannot guarantee that these modifications will work on your system.

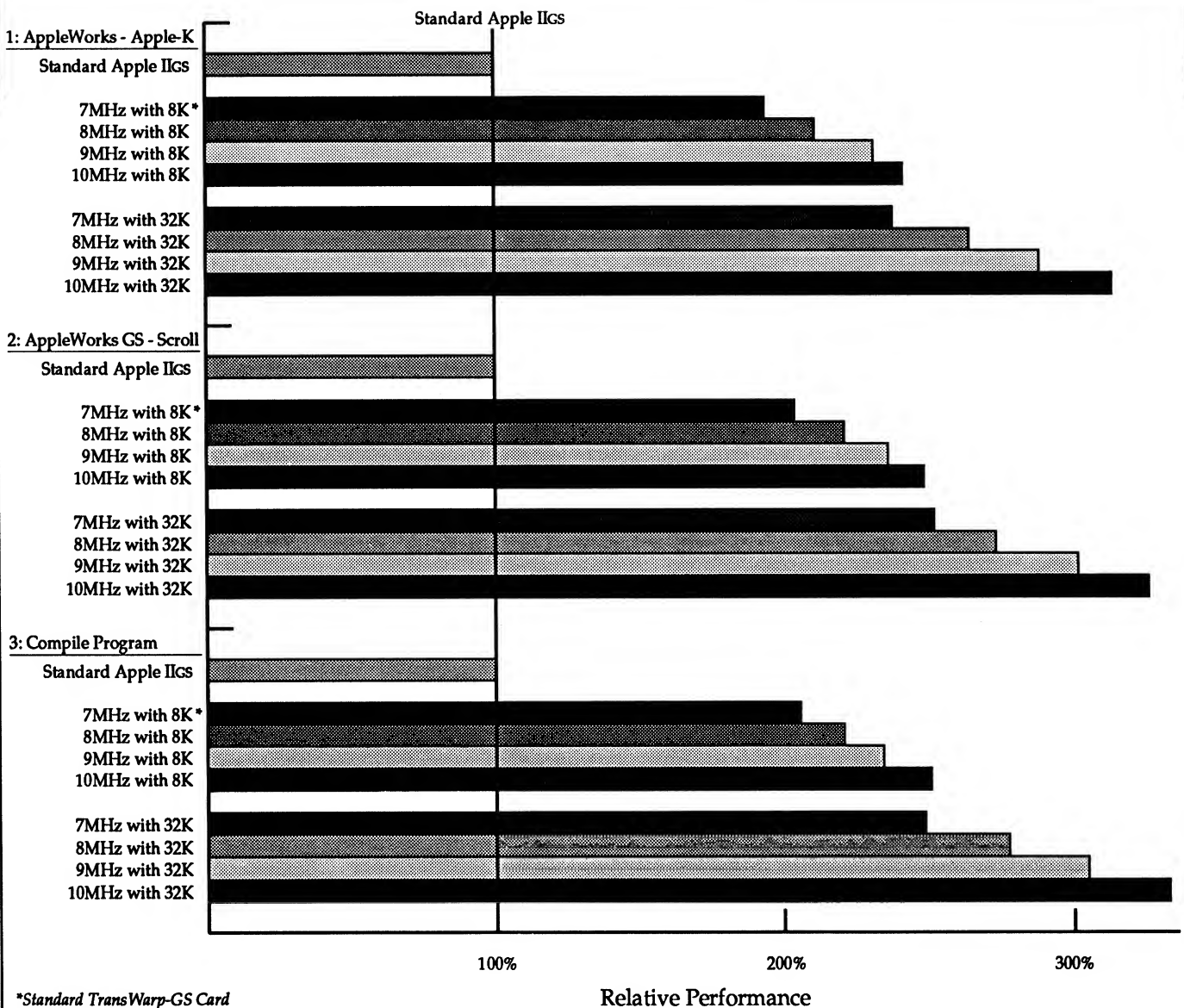
How to Get Enhanced Performance

There are two factors that determine the performance of your TWGS: The speed at which it processes instructions and the amount of high speed cache memory available on the card to execute those instructions.

Like most users, before I began this investigation I believed that accelerator performance was tied to processing speed. That is, I thought a 9 MHz accelerator would always outperform a 7 MHz accelerator. However, my tests revealed that the amount of cache memory on the card can have a significant impact on its performance. For example, I found that a 7 MHz TWGS with a 32K cache memory can outperform a 10 MHz TWGS with the standard 8K of cache. That is because a caching accelerator's performance is as dependent upon cache implementation as it is upon processing speed. (See the sidebar "Understanding Cache" for more details.)

Consequently, installing the cache upgrade kit is the single most effective enhancement you can make to any TWGS, no matter how fast its processor operates. Increasing the cache on the TWGS has all the advantages of factory approval and should work with any system which currently supports the TWGS. Fortunately, the cache upgrade also potentiates any increase in processing speed, so performance is improved exponentially when the two are combined on a single card. Consequently, anyone who is interested in installing the processing speed modifications I will describe next month should install the cache upgrade first, to get the greatest benefit from increased processing speed.

Figure 1: Relative Performance of Apple IIgs Systems



Performance Increases

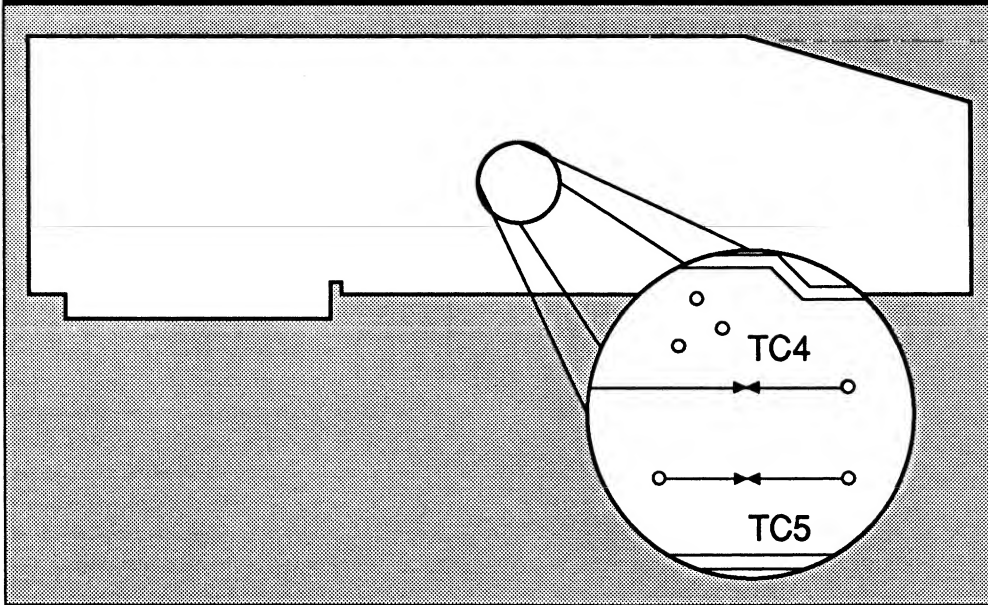
Figure 1 compares the performance of Apple IIgs computers equipped with TWGS cards that operate at different speeds and have different amounts of cache memory. The graph depicts the performance of these systems executing three different tests.

Test 1: Calculate the page breaks in a 218-page AppleWorks word processor document. This operation tests the TWGS's ability to manipulate large segments of RAM; the document occupied over 1500K of desktop memory.

Test 2: Scroll through a 39-page AppleWorks GS document. This task requires extensive updating of the screen display in the graphics environment, which is a significant shortcoming in the performance of IIgs systems.

Test 3: Compile 4800 lines of source code in MD-BASIC, a utility which runs under the 16-bit Orca-M development environment. This test involves repeated disk access and is thus not a perfect test of accelerator performance. Nonetheless, it shows that improving the performance of your accelerator will significantly accelerate processes other than sheer memory manipulation.

Figure 2: Back of the TransWarp GS Card



I conducted each test with an unaccelerated IIGS, with a IIGS equipped with a standard TWGS card (7 MHz and 8K of cache), with a 7 MHz TWGS and 32K of cache, and with cards operating at 8, 9, and 10 MHz with both the standard 8K cache and the upgraded 32K cache.

The Results

As you can see from *Figure 1*, installing a standard TWGS card more than doubles the speed of an unmodified IIGS system. Upgrading the cache on that card from 8K to 32K increases its speed an additional 22%. Upgrading both the speed of the card and the cache memory can increase TWGS performance by as much as 60%, leading to performance that is more than three times faster than that of an unenhanced IIGS system.

How to Increase Cache Size

You will need a wooden tongue depressor or a small screwdriver, an Xacto knife or single edge razor blade, and the Applied Engineering TWGS Cache Upgrade Kit to install this upgrade.

The process requires cutting two "traces" (the equivalent of wires) on your TWGS board and is not easily reversed. However, few owners will find any need to perform this reversal.

Follow these steps to increase the size of the cache on your card:

1. Turn off the power to your computer but leave it plugged into a grounded electrical outlet. Remove the case and touch the power supply inside the unit to ground yourself.
2. Remove the TWGS card from the computer.
3. The piggy back board is connected to the main TWGS by three 20 pin connectors. Remove it by rocking it back and forth until it comes free. If using your fingers proves too difficult,

insert a tongue depressor or a screwdriver under one side of the piggy back board and gently pry as you rock the board. If you use a screwdriver, be certain to cushion its contact point with a piece of cardboard. Be careful not to damage the delicate traces that run underneath the piggy back board.

4. Locate the two traces at butterflies TC 4 and TC 5 on the back side of the TWGS board (see *Figure 2*). Use an Xacto knife or razor blade to scrape between the points of the butterfly until the connection is broken. Do not cut too deeply, there is a second layer of traces underneath the butterflies, and cutting into them could render the board inoperable. The second layer is not easily reached, but it is better to be cautious than aggressive.
5. Insert the new piggy back board into the TWGS, observing the correct orientation. You should have no difficulty doing this with your fingers as your only tool.
6. Re-install the 32K TWGS in your system.

Testing Your Modified TWGS

Follow these steps to test the operation of your enhanced TWGS card:

1. Boot the system from your floppy or hard drive.

Understanding Cache

Both of the accelerators available for the Apple IIGS (TWGS and Zip GS) are caching accelerators. They read the contents of motherboard memory into a small area of high speed memory on the accelerator called its cache, which is why they are called caching accelerators. Although they are capable of accelerating any area of memory, these cards never accelerate more than a small portion of memory at any one time.

There are three phases in the operation of these cards, all of which consume time. First, the accelerator must capture the code it will accelerate. Second, the card's CPU executes the captured code at the accelerated processing speed. Finally, the accelerator must make any changes to motherboard memory indicated by the instructions processed in the cache. The third step is especially critical because the speed of motherboard memory is limited to 2.8, 2.6, and even a very slow 1.0 MHz, depending upon which area it addresses (2.8 for ROM areas, 2.6 for RAM areas, and 1.0 for screen display areas).

The TWGS incorporates features that improve all three operations.

Capturing and Executing

The TWGS divides its cache into two components called the "data area" and the "tag area". The data area contains the code it will accelerate; the tag area stores the address of the original code. The accelerator uses the information in the tag area to determine whether it has already cached the code it will execute, or whether it must capture that code first.

The IIGS system supports both 8-bit and 16-bit tags. Accelerators with an 8-bit tag limit the range of memory they can accelerate to a function of the size of the data area. For instance, an 8K data buffer might accelerate 1.5

megabytes of memory; a 16K data buffer might accelerate 3 megabytes, and so on. Thus, systems that use an 8-bit cache tag require more cache memory to accelerate all the memory in a large system.

The TWGS uses 16-bit tags which let it accelerate up to 16 megabytes of memory, no matter what the size of the data buffer on the card. Thus, adding more motherboard memory to a IIGS equipped with an 8K TWGS will not degrade its performance.

Unfortunately, the 16-bit tags require twice as many chips as the 8-bit system and results in a more expensive product. However, 16-bit tags are more efficient and more transparent to the user.

Every time the TWGS needs to execute some code, it checks the tag area to see if the code is already present. If the code is in the cache, the card executes the code. This is called a "hit". If the code is not in the cache, the accelerator captures the code from the motherboard. It stores the code in the data area and its address in the tag area. Then the TWGS executes the code. This is a "miss", because the capture and tag storage operations slow real world performance significantly.

A 100% efficient cache is one which never suffers a "miss". Regardless of whether you use an 8-bit or 16-bit tag, increasing the size of the data area in the cache increases the percentage of "hits", which is why the performance of the TWGS with a 32K cache is dramatically better than one with 8K of cache, even though processing speed is not changed.

Writing to Motherboard Memory

Many of the instructions executed in the cache issue orders that affect memory outside the cached instructions. The two techniques that handle this task are called "write through" and "write back".

"Write through" techniques halt processing until the system updates the memory outside the cache in accordance with the instruction just executed. This operation takes place at standard (unaccelerated) system speeds of 2.8, 2.6, or 1.0 MHz, depending on the area of the motherboard addressed. This process requires an additional delay because the DRAMS on the motherboard must synchronize their refresh cycles. This slow-down occurs frequently in all applications and can be a significant handicap to real world performance. However, write through technology is less complicated to implement, and can result in a less costly product.

"Write back" technology stores the instructions which order any change to motherboard memory in a special buffer on the accelerator at the accelerated speed. Later, they are written to the motherboard at the appropriate standard speed as a background process, while the accelerator continues to execute additional instructions at the accelerated speed. The TWGS uses multiple write back buffers to enhance its effectiveness and rarely slows down to standard speed.

Although write back is important for all data transfers from the TWGS to the motherboard, it is especially critical in accelerating screen displays, since the IIGS video memory cannot operate faster than 1 MHz (that keeps it compatible with Apple IIe applications). Thus, the TWGS handles the task of updating the screen in the background while you scroll through a large document. That leaves the TWGS free to continually process the code which orders the scrolling. This dramatically enhances the speed of operations that write to the screen, such as scrolling the screen with AppleWorks GS.

Applied Engineering Enhances TWGS

Applied Engineering now offers a factory approved, user installable kit which upgrades the TWGS's standard 8K of cache memory to 32K. The cache upgrade offers a 22% increase in the performance of a 7 MHz TWGS. When the upgrade is combined with modifications that increase processing speed on the TWGS to 10 MHz, the total increase in performance exceeds 60%.

The kit consists of complete instructions and a replacement piggy back board. The board includes ROM 1.7w32S (which makes it especially valuable to anyone with an early ROM who wants to install the processor speed enhancements I will describe next month) and SRAMs that are rated at 35 nanoseconds instead of the 45 nanosecond chips which are standard on the TWGS. The faster SRAMs should work reliably up to 10 MHz, which adds more value to the cache upgrade for anyone who is interested in attaining the fastest possible processing speeds from their TWGS card.

The TWGS Cache Upgrade Kit costs \$109 directly from Applied and is available from many of their dealers.

[Applied Engineering, Box 5100, Carrollton, Texas 75011; (214) 241-6060.]

If your system crashes or locks up, you did not completely cut the traces. Turn off your system, remove the TWGS card, and complete the cutting process.

2. Access the Control Panel and use the TWGS self-test routines to test the card. The test of the cache will take longer to execute; there is now four times as much cache memory to test. If you made a mistake, it will either not work at all, or will fail one of the cache related self-tests, in which case you should cut the traces at TC4 and TC5 slightly deeper. When you cut them deep enough, everything should work smoothly.

The Cost of Customizing

The TWGS is a remarkable product, and Applied has recently reduced its price, making it an even more cost effective upgrade to your IIGS system. Now they are offering a reasonably priced 32K cache upgrade which I recommend highly to all TWGS users. The improvement you get with 32K of cache is dramatic in itself, and interacts with the enhancements to processing speed that I will describe next month, for

exponential improvements in performance.

At \$109, increasing the cache on your TWGS might seem expensive. However, when analyzed as a function of the total cost of your computer, this enhancement, which offers more than a 20% increase in the processing speed of your entire system, is an excellent value.

[John Link is an AppleWorks consultant and the developer of SuperPatch and LockOut. The author thanks Steven Malechek of Applied Engineering for his help preparing this article.]

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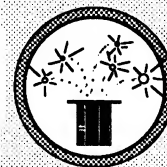
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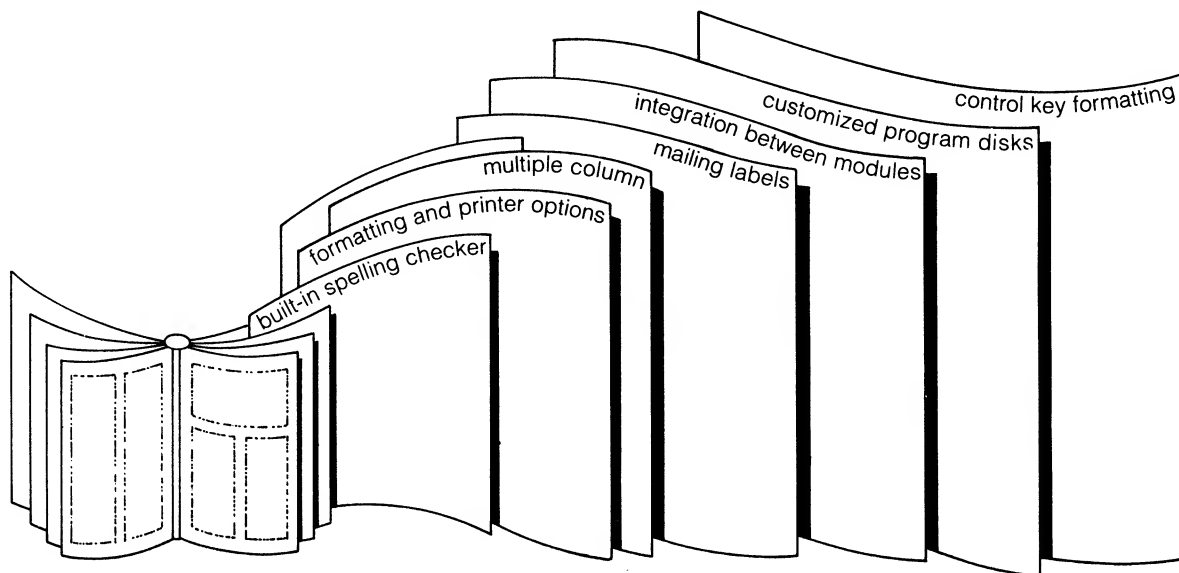
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Improved RamFAST Card Now Recommended

by John Link

Last November I reported that the RamFAST SCSI controller card dramatically improved the performance of my hard disk drives. However, I was not able to recommend the product because of repeated episodes of data destruction which affected two separate test systems, no matter how many combinations of hard disks, peripheral cards, power supplies, and RamFAST cards I tested.

I can now report that CV Technology has improved the design of the RamFAST. I have subjected the current RamFAST to extensive testing and judge the card reliable and just as fast as the earlier versions. (To date, I have conducted more than 101 optimizations of my hard drives and used the new RamFAST for more than a month without incident.) This is also the first RamFAST I used which never displayed a RamFAST memory error code.

What Is Different

CV Technology made a number of changes to improve the reliability of the RamFAST. First, they found that although the SCSI standard permits users to design systems with a total cable length up to twenty feet, early RamFASTs were sometimes unreliable when the cable length exceeded three feet. In addition, the cards were often unreliable when more than one drive was attached to the SCSI chain. This was caused by the different voltages that various hard drives provide to the terminator line on the SCSI bus. That results in momentary random surges (also called "electrical noise") which could enter the early RamFASTs and cause an assortment of problems that resulted in data destruction during write cycles. RamFAST cards now include a capacitor that shunts any noise on the terminator power line to ground so it cannot

affect the reliability of the card, which solves both problems.

CV Technology now also uses low power chips for three of the most power consumptive chips on the RamFAST. That results in a board that generates less electrical noise of its own and has greater tolerance to whatever noise it does generate. The lower power requirements of these chips also reduces the likelihood of power supply problems causing RamFAST failures.

The company includes these revisions on all RamFASTs with a serial number of 1250 or greater. As part of their lifetime guarantee, CV Technology also installs the noise trapping capacitor on every RamFAST that is returned to them for any reason. Even if your RamFAST is working well in your system, this is a worthwhile improvement, especially if you plan to change cables or add additional SCSI devices to your system.

Conclusion

I now use the RamFAST for my everyday computing and enthusiastically recommend the product for hard drive owners who want to speed up their systems.

Quick Tip

Like many AppleWorks users, Steven Breker-Cooper constantly finds useful but undocumented features built-into AppleWorks. Here is his latest discovery:

If you type an Open-Apple-Return in a word processor document, the cursor will jump to the beginning of the next line without entering a Return. You will find <oa-Return> useful when creating and editing a document.



The Ultimate 3.5 Drive

Introducing the new AE 3.5 Drive — setting a new standard for basic Apple II storage. All the reliability and performance of Apple's 3.5 drive at a price approaching that of the cheapest import. Our design incorporates the same top-quality Sony mechanism that Apple uses, but instead of Apple's \$429, our drive is \$279.

Just to make your decision easier, we added a couple of performance features like upgradeability to 1.4 MEG of capacity or higher — an upgrade we'll make available in the future.

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Our exclusive 2-way LED indicator shows green for reading, red for writing. Now you can monitor the drive's progress and know that a disk is actually being copied, instead of being confronted with an ambiguous "on" light.

We're even making available a low-cost optional controller card for the IIe. The card

(not required for IIGS), allows the IIe to accept data from the 3.5 format. The AE drive is also Macintosh compatible and you will be able to separately upgrade to 1.44 MEG in the Macintosh format.

Aesthetically, the AE Drive is every bit as handsome as the Apple Drive. We designed a thick, high-impact plastic case to stack with and exactly match the footprint of Apple's drive. Naturally, the AE Drive is Conserver compatible, snuggling neatly inside the drive port.

We also added features like auto eject, complete daisy-chain capacity (from AE to another drive or vice versa) and a full one-year warranty.

Features

- 800K, upgradeable to 1.4 MEG or higher
- 2-way LED indicator, green for read, red for write
- Auto eject
- Daisy chain port — works both ways, connect a drive to it, or connect it to another drive
- 1 year warranty
- Apple compatible, works with IIe, IIc Plus, IIGS, Mac and PC Transporter

- Stack and footprint compatible with Apple Drive
- Conserver compatible
- FDHD compatible (upgrade to 1.4 MEG or higher on Apple II)
- FDHD SuperDrive compatible (upgrade to 1.44 MEG on Macintosh)

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News and Special Offers for NAUG Members

NAUG

NAUG can now supply members with copies of the following Apple Computer publications:

Apple Computer's Educational Technology Consultants: A list of the names and addresses of Apple's twelve Educational Technology Consultants. Source: Apple Computer. 3 pages. Free.

Benchmark Tests for New Macintosh Computers: A non-technical article that compares the speed of Macintosh IIfx, IICI, IICx, IISI, SE/30, LC, Classic, and Plus computers with comparable IBM and Compaq computers. Source: Apple Computer. 2 pages. Free.

Macintosh LC: Compatibility with Selected Software: A list of Macintosh programs that run on the new Macintosh LC computer. (Note: Not all Macintosh program run on the LC.) Source: Apple Computer. 3 pages. Free.

Please send NAUG a self-addressed, stamped, #10 envelope with your request. Put the name(s) of the requested publication(s) on the outside of your envelope.

NAUG also has copies of Apple's "GS/OS 5.0.4 Release Notes", a 22-page collection of technical notes about the changes in each version of GS/OS. These notes are for developers and programmers; most AppleWorks users will not need this publication. \$5 for members, \$7.50 for non-members, including postage.

NAUG can still offer members a significant discount on Apple Computer's new 231-page *Apple II Guide: A Complete Resource for Users of Apple II Computers*. The *Guide* includes sections entitled "Apple II—Yesterday, Today, and Tomorrow", "Understanding the Basics", "Making the Most of Your Apple II", "Communication Strategies", "Troubleshooting", "Sales, Service, and Support",

"Understanding Technical Information", and "Information Resources". The *Apple II Guide* has a suggested list price of \$19.95. While supplies last, NAUG members can get the *Guide* for \$4 plus \$2 s/h from NAUG.

[NAUG, Box 87453, Canton, Michigan 48187; (313) 454-1115.]

ActaSoft

ActaSoft recently announced the availability of LetterWorks, which adds Macintosh-like menus to AppleWorks. You install LetterWorks on your working copy of AppleWorks and launch the program as an UltraMacros Task File. LetterWorks offers two sets of functions that you access from a menu bar at the top of the AppleWorks screen. One function makes it easy to write letters and memos. You indicate whether you want to write a letter or memo and either create a new address (which LetterWorks stores for future use) or automatically enter the recipient's address from your file. LetterWorks then lets you type, print, and store the letter or use the storage system to edit and print boiler plate, salutations, and closings in the body of the letter. Anyone who uses AppleWorks for their correspondence will appreciate LetterWorks.

DeskWorks enhances LetterWorks by adding an automatic telephone dialer and Rolodex system to the menu bar at the top of the LetterWorks screen. DeskWorks also lets you attach a "post-it" note to every document you create.

These macro-driven programs add significant features to AppleWorks and represent the leading edge in the use of TimeOut UltraMacros as a programming environment.

LetterWorks requires AppleWorks 3.0 and TimeOut UltraMacros or AlphaCheck. The program requires an enhanced Apple II or Apple II-compatible computer equipped with 256K or more of RAM

(512K recommended) and a 3.5-inch or hard disk drive. The program supports, but does not require, a mouse.

LetterWorks has a suggested list price of \$49.95, however NAUG members can buy the program directly from ActaSoft for \$29.95. DeskWorks, which requires LetterWorks, normally sells for \$24.95, but costs NAUG members \$10. Add \$3.50/s/h per order.

[ActaSoft, 19700 Wells Drive, Woodland Hills, California 91364; (818) 996-6731.]

American Printing House

The American Printing House for the Blind (APH) maintains an extensive collection of materials for visually impaired computer users and teachers who work with visually impaired students. Items available include Textalker GS, a program that gives Apple IIGS computers the ability to read anything that appears on the screen, a brailled keyboard model and overlay, and large print, braille, disk, and audio tape versions of computer books and documentation. NAUG members should contact APH and request a complete catalog.

[American Printing House for the Blind, Box 6085, Louisville, Kentucky 40206; (502) 895-2405.]

Apple Computer

Apple Computer recently announced that some Apple IIGS computers might have defective power supplies that will fail under certain "low-load" conditions (Apple specifically mentions the absence of any SCSI devices attached to the system).

Affected power supplies have (a) a dull, brushed metal case, (b) a power supply serial number beginning with the letter "I" (The serial number is on the end of the power supply that faces the front of the computer.), and (c) no red dot on the top of the power supply case toward the back of the computer.

Power supplies in shiny metal cases, or with serial numbers beginning with "M", or with a red dot are not affected.

If you already paid for an out-of-warranty power supply replacement, you may be eligible for reimbursement from Apple for the cost of the repair.

However, the replacement had to be made by an authorized Apple Service Provider. If you qualify, send the following documentation to Apple by June 30, 1991: (a) Original proof of purchase; (b) Service Repair Order (which must include the name of the Apple Service Provider, the date of the repair, the parts used in the repair, and the cost of the repair); and (c) Proof of payment for the repair.

NAUG is concerned that this policy does not cover IIGS owners who replaced defective power supplies with third party heavy duty units; we suggest that you negotiate your circumstances with Apple. Please notify NAUG if you are successful in your negotiations; we will share your approach with your NAUG colleagues.

Members with defective power supplies that have not failed should contact the Apple Customer Assistance Center for details of how to proceed.


For a free copy of the notice from Apple, send a self-addressed, stamped #10 envelope to Apple Power Supply, NAUG, Box 87453, Canton, MI 48187. For the name of the your local authorized Apple dealer, call Apple at (800) 538-9696. For additional information about this program, call the Apple Customer Assistance Center at (800) 776-2333.

[Apple Computer, Inc., Attn: Apple IIGS Power Supply Repair Extension Program, Box 16562, Denver, CO 80216.]

Beaumont Software

Soup Up Classic! is a collection of more than 275 useful macros that work within AppleWorks. (A description of these macros appears on page 25 of the August 1990 issue of the *AppleWorks Forum*.) Beaumont Software now offers a school site license for Soup Up Classic! which authorizes educational institutions to make up to 25 copies of the macros on the Soup Up Classic! disk. Licenses cost \$95 per site, postpaid.


In addition, effective March 1, Beaumont Software reduced the price of single copies of Soup Up Classic! from \$24.95 to \$19.95. NAUG members who purchased Soup Up Classic! after December 1, 1990 will receive a \$5 rebate directly from the company.

 [Beaumont Software, 5520 Hooks Avenue, Beaumont, Texas 77706; (409) 892-4120.]


Chinook Technology

Until April 30, NAUG members can get significant discounts on Chinook Technology memory cards and hard disks.

The Chinook RAM 4000 is an Apple IIGs memory card that uses 1-megabyte RAM chips, is DMA compatible, and is user upgradeable to 4-megabytes of onboard memory. The card conforms to Apple Computer's design and construction standards for enhanced Apple IIGs memory. The 1-megabyte card regularly retails for \$149; until April 30, NAUG members can buy the RAM 4000 directly from Chinook for \$119.95 plus \$3 s/h.

 Chinook will also supply NAUG members with memory chips at special prices. Until April 30, NAUG members can get a 1-megabyte bank of 1-MB x 1 chips for \$54.95 (list price is \$69.95). For single orders of 10 banks or more, the price is \$49.95. These chips fit RAM 4000, GS RAM Plus, GS Juice Plus, and many other memory expansion products. Contact Chinook to determine if these chips fit your memory expansion card.

Chinook also announced special NAUG member prices on the company's line of SCSI-compatible external hard drives. NAUG members can buy a 40-megabyte Chinook CT-40, which features the Connor CP3040 mechanism with a 25-millisecond average seek time, for \$459 (regularly \$489). Chinook also introduced a new 80-megabyte CT-80, which uses a Maxtor mechanism, and will sell to NAUG members for a special introductory price of \$579 (regularly \$639). An Apple High Speed SCSI card costs \$99 (list price: \$129).

 Chinook is also offering special prices on the company's external IIC-compatible drives. Until April 30, the 20-megabyte CT-20c (which lists for \$549) is on sale for \$509 and the 40-megabyte CT-40c (regularly \$649) will sell for \$599. Both drives feature Connor mechanisms. The new 80-megabyte CT-80c, which uses a Maxtor mechanism, is available for \$749 (regularly \$799). These drives require a UniDisk 3.5-compatible IIC or IIC Plus computer. Contact Chinook to determine if your IIC

can accommodate these drives.

All Chinook drives feature voice-coil actuators. The SCSI drives include the Chinook SCSI utilities (regularly \$29.95) which verifies the disk, remaps bad blocks, partitions the disk, and does benchmark testing (such as data transfer rate and access time).

Finally, until April 30, the company offers NAUG members who buy both a RAM 4000 and a SCSI hard drive an additional \$10 discount on the combined discount price of those products.

Identify yourself as a NAUG member and give your NAUG membership number from the address label on this issue of the *AppleWorks Forum* when you contact Chinook.

[Chinook Technology, 615 Main Street, #635, Longmont, Colorado 80501; (800) 999-7034.]

FrankSoft Publishing

FrankSoft Publishing recently extended its special 50%-off NAUG member offer for the company's comprehensive AppleWorks financial spreadsheet templates. A description of these products and the special NAUG prices appears on page 18 of the January 1991 issue of the *AppleWorks Forum*. This offer now extends through April 30, 1991.

FrankSoft also announced the availability of Asset-E, an expanded version of the firm's popular asset analysis template. Asset-E requires a 218K AppleWorks desktop and doubles the available data input area in the standard version of the template. The expanded version accommodates the data entry needs of mutual fund investors and others who track a large number of repeated investments or an extended investment portfolio. The "E" version of the product comes on a 3.5-inch disk and includes documentation in a 24-page word processor file.

Asset-E has a suggested list price of \$54.95; NAUG members can buy the program directly from FrankSoft for \$29.50 plus \$3 s/h. Illinois residents must add 6.25% sales tax. The company accepts Visa and MasterCard and sells all products with a promise of "Satisfaction guaranteed or your money back".

Note that all FrankSoft products run under AppleWorks 1.3 or later on any AppleWorks-compatible computer with sufficient desktop memory.

[FrankSoft Publishing, 3300 33rd Avenue Court, Rock Island, Illinois 61201; (309) 788-7663; Fax: (309) 788-7664.]

JEM Software

JEM Software now offers site licenses for its MiniPaint IIGS paint program. MiniPaint, written by Matt Reimer (author of Beagle's powerful Platinum Paint program), supports both 320 and 640 mode color graphics, and offers auto shadowing of shapes and other powerful graphics features. MiniPaint can print black and white graphics on LaserWriter and ImageWriter printers or produce color output on ImageWriter II printers equipped with a color ribbon.

MiniPaint, which runs on stand-alone or AppleShare-networked computers, requires an Apple IIGS with at least 768K of RAM and GS/OS 5.0.2 or later. The single user price is \$25; site licenses cost \$12.50 per machine for four or more systems. Special prices are available for sites with more than 20 computers.

[JEM Software, 7578 Lamar Court, Arvada, Colorado 80003. Orders only: (303) 422-4856.]

John Link

LockOut is an inexpensive utility program that keeps students and other users from changing the Apple IIGS Control Panel settings. This increases the reliability of IIGS computers used in schools and other shared-use settings.

John Link just released version 1.1 of LockOut. Version 1.1 fixes a problem that occurs when you use the program with non-networked IIGS computers equipped with a single disk drive. Owners of earlier versions of LockOut who experience this problem can update to version 1.1 at no charge; return your original LockOut disk to Mr. Link with your request for an update. Anyone using computers attached to a network or equipped with two or more disk drives need not update to version 1.1.

LockOut 1.1 costs \$10 plus \$2 s/h.

[LockOut, 3382 Sandra Drive, Kalamazoo, Michigan 49004.]

Quality Computers

Quality Computers recently released version 3.3 of RepairWorks, Gary Morrison's popular program that recovers damaged AppleWorks word processor and data base files. Version 3.3 includes an enhancement that improves the program's ability to recover damaged data base files. The latest release also fixes some minor bugs in version 3.2.

NAUG members can upgrade to version 3.3 by sending their original RepairWorks disk and the appropriate payment to one of NAUG's Beagle Buddies (see page 22 of the December 1990 issue of the *AppleWorks Forum*). Non-members can get upgrades from Quality for \$10 plus \$2 s/h. RepairWorks 3.3 costs \$34.95.

[Quality Computers, Box 665, St. Clair Shores, Michigan 48080; (800) 443-6697.]

Corrections

Please make the following corrections to the *AppleWorks Forum*.

December 1990: Page 4, Column 2:

The No-Slot Clock Patch should be:

157 IF PEEK (X) < > 76 AND PEEK (X) < > 96 THEN

X=20742:R=10294: IF PEEK(R)< > 208 AND PEEK (R) < > 165
THEN R=10341

January 1991: Page 18, Column 1:

Apple Computer's new Education Technical Bulletin replaces the company's *Apple II Technical Bulletin*, not the *Apple II Technical Notes*. Apple will continue to release *Apple II Technical Notes*.

January 1991: Page 32, Column 1:

Step #7 should read: "7. Press the Return Key to return to the Define Field Menu."

January 1991: Page 32, Column 2:

Step #11 should read "11. Press the Return Key and then the Escape Key to return to the Editor. Create another field called ZeroNumber."

January 1991: Page 33, Column 1:

Change the formula from:

@CONCAT (@LEFT ("000", 3-@LEN (StreetNum)), StreetNum) to

@CONCAT (@LEFT ("000", 3-@LEN (StreetNumber)), StreetNumber)

Also change all references in paragraphs A-D below the formula from "StreetNum" to "StreetNumber".

January 1991: Page 33, Column 1:

Step #12 should read "12. Press the Return Key and then the Escape Key to return to the Editor."

January 1991: Page 33, Column 1

Change the formula at the bottom of the column from:

@CONCAT (@UPPER (@LEFT (LastName, 3)), ZeroNum) to

@CONCAT (@UPPER (@LEFT (LastName, 3)), ZeroNumber)

February 1991: Page 21, Column 1

JEM Software's telephone number is (303) 422-4856.

Date Functions and Form Letters — Part 1

by Dan Verkade

This is the ninth in a series of articles that describe how to use TimeOut ReportWriter to enhance the power of AppleWorks. The author assumes that you read the previous articles in this series.

Although AppleWorks is a powerful, flexible program, its shortcomings make it difficult to use for some applications. For example, the program does not do date arithmetic, does not handle dates beyond the year 1999, and does not let you easily merge more than a few words of text into a document. This month you will learn how to use ReportWriter's functions to overcome these limitations.

Julian Dates

Some of ReportWriter's date functions are based on "Julian dates". This approach changes every calendar date (such as January 1, 1991), into an absolute number (such as "1"). The number increments by one for each successive date. Here are the Julian dates for several dates, using a base date of January 1, 1991:

Calendar Date	Julian Date
January 2, 1991	2
January 31, 1991	31
February 1, 1991	32
December 31, 1991	365
January 1, 1992	366

This algorithm lets you (a) use subtraction to find the number of days between any two calendar dates, and (b) find any calendar date expressed as a number of days in the future.

For example, to find the number of days between January 5, 1991 and February 1, 1991 you would find the Julian date of each (5 and 32, respectively) and subtract the earlier date from the later date. Since $32 - 5 = 27$, there are 27 days between January 5 and February 1.

The Julian date system also accounts for leap years.

For example, if you want to know the calendar date that is 28 days after February 1, 1991, you would find the Julian date of February 1, 1991, (32) and add 28. $32 + 28 = 60$. In 1991, 60 translates to March 1. Next year is a leap year, so in 1992, 60 will translate to February 29 (that is, if you assume that Julian date "1" is January 1, 1992).

The Julian date system requires a base date, a calendar date that is equivalent to Julian date "1"; ReportWriter uses March 1, 1920 as its base date.

Translating Julian Dates

ReportWriter offers four functions that convert AppleWorks dates to and from the Julian date system.

@DAT2JUL(AppleWorks Date): [Read this function as "Date-to-Julian".] Converts an AppleWorks date into a Julian date. For example, @DAT2JUL(Apr 1 20) yields an answer of "32".

Imagine that you defined a ReportWriter field called "DateDue" that uses data from an AppleWorks category called DueDate. If you defined DateDue as @DAT@JUL(DueDate), ReportWriter will print the Julian date number for each record as follows:

DateDue	@DAT2JUL(DueDate)
Mar 1 20	1
Jan 15 91	25888
Mar 15 91	25947

@JUL2DAT(Julian Numeric): [Read this function as "Julian-to-Date".] Converts a Julian date into an AppleWorks date. Consider these examples:

@JUL2DAT(13802) returns Dec 13 57

@JUL2DAT(25888) returns Jan 15 91

The following formula computes the calendar date 60 days past the date in the ReportWriter field named "RentDue":

`@JUL2DAT (@DAT2JUL (RentDue) +60)`

Thus, if RentDue contains Jan 15 91, the formula `@JUL2DAT (@DAT2JUL (RentDue) +60)` returns "Mar 16 91".

`@JUL2DAT` returns an AppleWorks date, thus you must define the ReportWriter field containing this formula so it expects entries in date format.

@TODAYJ(Dummy): Computes today's date as a Julian number. `@TODAYJ` gets the date from the ProDOS clock or from the date you enter when you boot AppleWorks. "Dummy" can be any number; the number is meaningless but is required.

If today is January 15, 1991, `@TODAYJ(0)` returns 25888. The formula `@TODAYJ(0) - @DAT2JUL (DueDate)` will yield the number of days between the due date and the day you produce the report.

@JUL2YR(Julian Date): Returns the full year of a Julian date as a number, including the century.

`@JUL2YR` lets ReportWriter users overcome AppleWorks' inability to handle dates beyond the year 1999. Since the Julian date 29161 is the calendar date January 1, 2000, `@JUL2DAT (29161)` returns "Jan 1, 0" and `@JUL2YR (29161)` returns "2000".

Thus, if the Julian date 29161 was contained in the field F1, you can use the formula:

`@CONCAT (@LEFT (@DAT2TXT (@JUL2DAT (F1) , 2) , 6) , " , " , @NUM2TXT (@JUL2YR (F1) , 0))`

to print "Jan 01, 2000" in a ReportWriter report.

@DATDAY(AppleWorks Date): Returns the day portion of an AppleWorks date in a numeric format. For example, if F1 contains Mar 15 91, `@DATDAY (F1)` returns "15". One use of `@DATDAY` is to put the day in text messages within billing statements.

@DATMO(AppleWorks Date): Returns the month of an AppleWorks date in a numeric format. For example, if F1 contains Mar 15 91, `@DATMO (F1)` will return the number "3". Thus, you can use the formula:

`@CHOOSE (@DATMO (F1) , "January" , "February" , "March" , "April" , "May" , "June")`

to convert the month into its written name. You can also use this technique to write dates in foreign languages.

@DATYR(AppleWorks Date): Returns the year of an AppleWorks date in a numeric format. For example, if F1 contains Mar 15 91, `@DATYR (F1)` will return the number "91". Note that this formula will return "0" for the years 1900, 2000, and so on.

@DAT2TXT(AppleWorks Date, Number): Changes an AppleWorks date to text. There are four possible formats, depending on the number you specify after the AppleWorks Date. For example, if "DueDate" is January 15, 1991, `@DAT2TXT (DueDate, Number)` returns the following results, depending on the value of "Number":

Number	Format	Result
1	mm/dd/yy	01/15/91
2	mmm dd, yyyy	Jan 15, 1991
3	dd/mm/yy	15/01/91
4	dd mmm, yyyy	15 Jan, 1991

One application of `@DAT2TXT` is to convert AppleWorks dates (which do not contain a comma between the date and the year nor the first two digits of the year) to a more appropriate format for letters and reports.

@TXT2DAT(Text): Changes a text date into the AppleWorks date format. The text date must be of the format dd/mm/yy. You can omit leading zeros; 01/15/91 and 1/15/91 are both acceptable entries. For example, the formula `@TXT2DAT ("01/15/91")` returns "Jan 15 91" if you define the field containing the formula as an AppleWorks date.

@DATE(Number): Returns today's date in text format. It gets the date from the ProDOS clock or from the date you enter when you boot AppleWorks. The argument "Number" determines the format for the printed date. `@DATE` offers the same formats as appears in the description of `@DAT2TXT` above. One use of `@DATE` is to date stamp your ReportWriter output.

Time Functions

ReportWriter offers only two rudimentary functions that manipulate time variables.

@MAKETIM(Hours,Minutes): Returns the time

ReportWriter Tutorial...

in AppleWorks time format. If you configure AppleWorks 3.0 to display times in the AM/PM format, @MAKETIM(15,15) returns "3:15 PM". If you configure AppleWorks to display times in 24-hour format, @MAKETIM(15,15) returns "15:15".

@TIME(Number): Returns the current time in text format. @TIME uses the ProDOS clock to obtain the time. If you do not have a clock, @TIME returns "00:00". "Number" determines the format; "1" returns AM/PM format, "2" returns 24-hour format. For example, if the time is 4:30 pm, @TIME(1) returns "4:30 PM" and @TIME(2) returns "16:30".

Adding Word Processor Data

ReportWriter offers an @AWP function that lets you use paragraphs of text from a word processor file in a report. The syntax of @AWP is:

@AWP (FileName, ParagraphNumber)

"FileName" is the name of a word processor file that must be on the desktop. You can either state the name of the file or extract the filename from a ReportWriter field. That lets you use two or more word processor files in a single report.

"ParagraphNumber" is the number of the paragraph that you want to print. Paragraph 1 is the first paragraph in the document. Paragraph 2 is the second paragraph, and so forth. A paragraph consists of all the text between two Returns. Thus, a paragraph can be a letter, a word, a line, or a group of lines. A line containing only a Return is considered a blank line, and ReportWriter does not count blank lines as a paragraph. However, a line that contains spaces counts as a paragraph even though it looks blank.

The annotated example in *Figure 1* will clarify the paragraph numbering system.

The command @AWP ("WPSample", 2) will print paragraph 2 of the file WPSample in your report.

Note the following about the @AWP function:

1. You cannot use @AWP inside another function. However, you can use other functions inside @AWP.

Figure 1: Numbered Paragraphs

File: WPSample	REVIEW/ADD/CHANGE	Escape: Main Menu
It is time for all good men to come to the aid of their country.¶		Paragraph 1
Our records indicate your account is 30 days past due. We are certain this is merely an oversight on your part. Please remit the above amount at your earliest convenience.¶		Paragraph 2
Merry Christmas¶		Paragraph 3
		Paragraph 4
Z¶		Paragraph 5

For example, @CONCAT (@AWP ("WPSample", 1), @AWP ("WPSample", 2)) is not a legal ReportWriter statement because you cannot use @AWP within the @CONCAT function.

By contrast, @AWP ("WPSample", @INT (DaysOverdue/30)) does not nest @AWP within another statement and is legal.

2. ReportWriter will print the contents of the entire paragraph, no matter how short the defined length of the field. That is, paragraph #2 above will print in its entirety even in a field with a field length of 1. ReportWriter remembers the number of lines printed and adjusts page breaks accordingly.
3. Paragraphs will print exactly as they look on the word processor Review/Add/Change screen. They are not reformatted to fit within the ReportWriter margins. However, ReportWriter will truncate any line of text that exceeds the right margin setting of ReportWriter. If your text does not fit within the ReportWriter margins, change the margins in the word processor document and reprint the report.

Next month's article will present a tutorial that uses these functions.

[Dan Verkade is the author of TimeOut ReportWriter, DoubleData, SuperForms, and other popular AppleWorks enhancements.]

Get Help with AppleWorks Compatible Software and Desktop Publishing

by Nanette Luoma

Each month, the *AppleWorks Forum* lists the member-volunteers who offer technical support for AppleWorks products. This month's list identifies the volunteers who can answer questions about other AppleWorks compatible software and desktop publishing. Next month's issue will contain a list of all Beagle Buddies.

AppleWorks Add-Ons

How to Use this List

Use this month's list to find help with other AppleWorks compatible software and desktop publishing. To the left of each volunteer's name is one or more numbers indicating the enhancements that consultant supports. Volunteers are listed alphabetically by state.

- | | |
|----------------------|----------------------------|
| 1 = 1040Works | 7 = CrossWorks |
| 2 = AutoWorks | 8 = EuroWorks |
| 3 = RAMUP | 9 = Publish-It! 2/3 |
| 4 = SchoolWorks | 10 = Springboard Publisher |
| 5 = Sensible Grammar | 11 = Medley |
| 6 = Sensible Speller | 12 = AppleWorks GS |

	City	Home	Work
Arizona			
5,6	Clay Evitts	Tucson	602-885-9789 602-296-5491

California			
1,9	Brian Blue	Danville	415-838-0997 415-954-6002
6	James Davis	Hayward	415-489-7024
1,9	Terry Higgins	Newark	415-745-7884 415-593-2500
3,6	Berenice Maltby	Corona del Mar	714-640-7369
1	Will Nelken	San Rafael	415-459-0845 415-456-1795
1,7,9	Jesus Orosco	Milpitas	408-270-1011 408-945-4344

Colorado			
9	Gary P. Armour	Littleton	303-933-9493 303-972-4665
1	Lyle Graff	Littleton	303-794-5970 303-977-4557
9	John Loren	Littleton	303-978-0603
9	Stephen Reiss	Aspen	303-923-6172 303-923-6172

Connecticut			
9,10	William Delaney	Enfield	203-745-4048 203-749-8391
9	Ged Jones	Lakeville	203-435-0295 203-435-0871
9,11,12	Martin Knight	Middletown	203-346-9698 203-347-8594
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1,9	Charles Fryling, Jr	Baton Rouge	504-766-3120	504-388-1473

Maryland				
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2,3,8	David Scott	Wall	201-531-0600	201-681-0600

New Mexico				
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9	David Selwyn	Las Cruces		505-522-7622

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9	Steve Black	South Glens Falls	518-798-1128	518-793-9644
2,9	Linda Doscher	West Nyack	914-358-7064	
8	Carlos M. Madan	Morrisville	518-562-0779	518-359-3322
9,12	Larry Merow	Sayville	516-567-0603	516-422-0315
5,6,9,12	James L. Nicoll	Pittsford	716-381-9480	716-546-6732
2,5,9	Jerry Taylor	Rochester	716-964-3319	
12	Terry Williamson	Orchard Park	716-662-5104	716-873-9750

North Carolina				
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Ohio				
5,6	Jason Chao	Cleveland Hts.	216-321-5451	216-844-3791
6,9	Don E. Fisher	Dayton	513-890-0428	513-461-2444
10	Carman Greco	St. Clairsville	614-695-5026	
9	Marcia Reed	Millbury	419-836-9291	419-836-9291

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2,12	James E. Hanushek	Dhahran	3-878-4075	3-877-1533

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